
Arab Republic of Egypt
Ministry of Education
Book Sector

Mathematics

for Primary Stage - Year 4

First term

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Foreword

Dear students,

We are pleased to introduce this book " *Mathematics for Primary stage - Year 4* " to our children. We have done all what we can to make studying mathematics an interesting job for you. We are confident in your abilities in understanding the subject of the book, but even seeking for more.

Besides the interesting figures and drawings, we took into consideration to increase cross-curricular and real life mathematics applications, where you sense the value and importance of studying mathematics. In many situations, you will find that we ask you to use a calculator to check mathematical operations, and invite you to use the computer to conduct some operations and draw some figures and decorate them. Towards the end of every unit, you will find some activities (sometimes may be closer to puzzles), in order to enjoy studying mathematics, where you will find great, but calculated, challenges that alerts your minds and develops your tendencies.

Be careful to follow all what is written, conduct all activities and do not hesitate to question your teacher in all what you may face of any difficulties.

Remember that many of the mathematics questions which have more than one correct answer, and studying it bears values that reflect this great humanitarian effort.

May God help you and us to acheive what is good for our beloved nation Egypt.

The authors

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Contents



Measurement

Unit One

Large Numbers and Operations on them

- Hundred thousands
- Millions,
- Milliards (Billions)
- Operations on Large Numbers
- Unit 1 Activities
- General Exercises on Unit 1



Lesson 1 Hundred Thousands

99 999 + 1 = 100 000

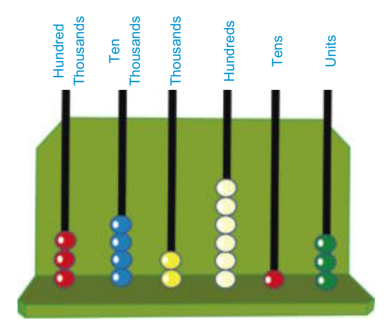
$$\begin{array}{r} 99999 \\ +\quad 1 \\ \hline 100000 \end{array}$$

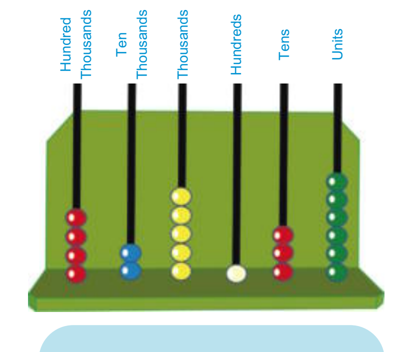
This number is read as **“hundred thousand“**

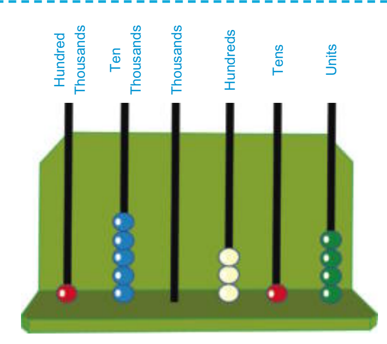
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units	
	9	9	9	9	9	
					1	+
1	0	0	0	0	0	

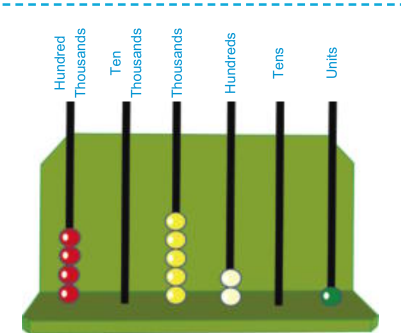
Exercise 1

1 Write the numbers.









2 Complete according to the place value of each digit.

Number	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
752 341						
605 618						
78 539						
58 002						

3 Underline the correct number, in digits, which express each of the following words.

a one hundred sixty thousand, seven hundred and forty ....

b one hundred thousand, three hundred and seventy-five ......

c seventy thousand, five hundred and ninty- three ....

4 Complete as the example.

Example: 147 962 = 962 + 147 000
= 2 + 60 + 900 + 7 000 + 40 000 + 100 000

a 672 384 = 384 + ...
= 4 + 80 + ...

b 126 459 = 459 + ...
= 9 + ...

c 35 608 = 608 + ...
= ....

5 Read the following numbers, then write them in words.

a 712365

b 105206

c 300418

6 Write the value of the circled digit in each of the following numbers.

a 27 351 (circled: 7)　　b 156 348 (circled: 4)　　c 723 608 (circled: 7)

d 543 092 (circled: 0)　　e 230 045 (circled: 3)　　f 467 900 (circled: 4)

7 Complete using the suitable sign < , > or = in each □.

a 132 045 □ 93 245　　b 85 679 □ 302 001

c 100 074 □ 74 001　　d 321 587 □ 321 587

e 20 864 □ 20 531　　f 437 786 □ 437 876

8 Write the greatest and the smallest number that can be formed from the number cards in each of the following.

a | 4 | 1 | 5 | 3 | 2 | 6 |
greatest ....
smallest ....

b | 7 | 6 | 4 | 3 | 9 | 1 |
greatest ....
smallest ....

c | 3 | 3 | 2 | 6 | 7 | 7 |
greatest ....
smallest ....

9 Arrange the following numbers in an ascending order, then in a descending order.

a 654 321 , 143 265 , 142 365 , 645 321

b 325 604 , 302 564 , 325 046 , 325 064

c 515 115 , 151 155 , 551 115 , 115 515



10 Complete in the same pattern.

a 710 654 , 720 654 , 730 654 , ... , ...

b 80 000 , 280 000 , 480 000 , ... , ...

c 100 568 , 100 578 , 100 588 , ... , ...

d 220 300 , 210 300 , 200 300 , ... , ...

11 Join the cards with equal numbers.

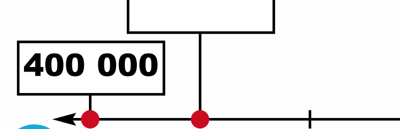
710 710		1 710 + 70 000
710 + 71 000	710 + 710 000	71 710
10 + 700 + 710 000	10 + 700 + 71 000	

12 Underline the nearest number to 100 000 in each case.

a 90 000 and 109 000 **b** 101 000 and 100 900

c 200 000 and 90 000

13 Write suitable numbers inside the empty rectangles on the number line according to thier places.



400 000 ... 500 000

14 **a** Write the greatest 6-digit number.

b Write the greatest different 6-digit number.

c Write the smallest 6-digit number.

d Write the smallest different 6-digit number.

15 **a** Write the greatest number different 6-digit number and their sum is 15.

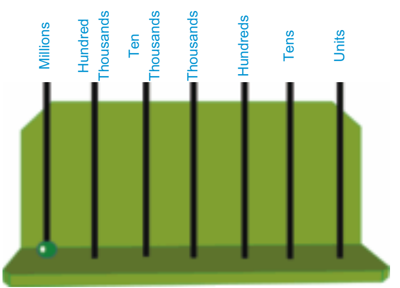
b Write the smallest different 6-digit number and their sum is 17.

c Write the greatest different 6-digit number and the sum of its units and tens digits is 7.

d Write the smallest different 6-digit number and the sum of its units and tens digits is 7.



Millions



Complete the following table to find the sum of: 999 999 + 1

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
	9	**9**	**9**	**9**	**9**	**9** **+ 1**

The sum is 1 000 000, and it is read as '**one million**' and can be represented on the abacus as in the figure above.

To read the number 49 136 527, we separate its digits as shown below

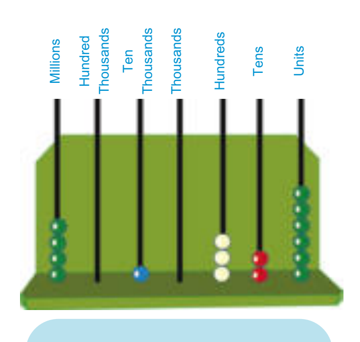
49 | 136 | 527

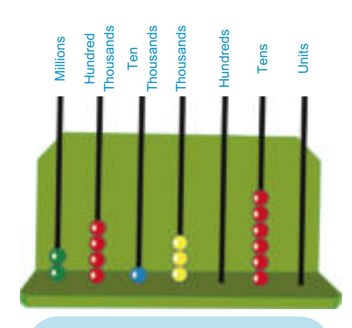
Millions   Thousands   Units

it is read from left to right as: 49 million, 136 thousand and 527

Exercise 2

1 Write the numbers.





2 Write each of the following number in digits then put it in the corresponding table according to the place value of each digit.

(a) 17 million and 450 thousand and 46

Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units

(b) 105 million and 11

Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units

3 Write the following number in digits.

(a) One million , one hundred and fifty thousand and twenty seven.

(b) Twenty four million, thirty thousand and two hundred five.

(c) Five hundred million and six hundred thousand .

(d) Nine hundred thousand and eighty.

4 Write the following sum in digits.

a $\frac{1}{4}$ million pound.

b $\frac{1}{2}$ million pound.

c $\frac{3}{4}$ million pound.

5 Write the following sum in digits.

a 7435218 =7 million + 435thousand + 218.

b 4691508 = ...million + ...thousand + ...

c 734216858 = ...million + ...thousand + ...

d 168730050 = ...million + ...thousand + ...

6 Join the two cards which express the same number

1 170 650	one million, one hundred and fifty thousand, six hundred and seventy
1 150 760	one million, one hundred and seventy thousand, six hundred and fifty
1 170 560	one million, one hundred and fifty thousand, seven hundred and sixty
1 150 670	one million , one hundred and seventy thousand, five hundred and sixty

Lesson 3

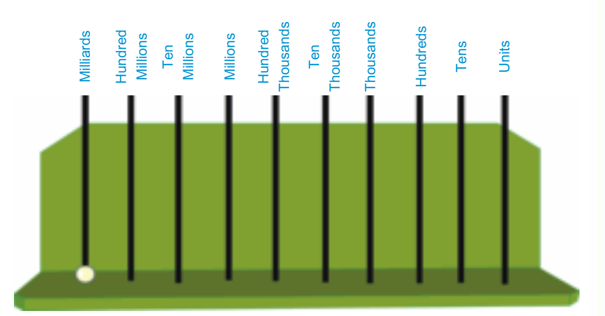


Complete the following table to find the sum of:
999 999 999 + 1

Milliards	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
	9	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9** **+ 1**

Milliards — Millions — Thousands — Units

The sum is 1 000 000 000 which is the smallest 10-digit number and is read as '**milliard**', and can be represented on the abacus as in the figure opposite.



To read the number 6 408 192 357, we separate its digits as shown below

6	408	192	357
Milliards	Millions	Thousands	Units

and it is read from left to right as: 6 Milliard, 408 million, 192 thousand and 357

Exercise 3

1 Read the following numbers, then complete.

a 8 719 645 302 …… milliard, …… million, …… thousand and ……

b 6 539 006 475 …… milliard, …… million, …… thousand and ……

c 2 163 900 800 …… milliard, …… million, …… thousand and ……

d 5 180 070 506 …… milliard, …… million, …… thousand and ……

2 Join the two cards expressing the same number.

7 000 600 900

7 million, 6 thousand and 900

7 million, 600 thousand and 900

70 600 900

7 006 900

7 milliard, 600 thousand and 900

7 000 000 + 6 000 + 900

3 **a** Which of the following numbers is the nearest to one milliard? Represent the numbers on the number line.

1 000 000 090 , 999 999 990 or 1 100 000 000

b Which of the following numbers is the nearest to two milliard?

2 000 000 020 , 299 999 999 or 1 999 999 900

4 **a** Find two 10-digit numbers with the difference between them is one milliard.

b Find two 10-digit numbers with the difference between them is one million.

c Find two 10-digit numbers with the difference between them is one thousand.

5 Write the following quantities of money in digits.

a $\frac{1}{4}$ milliard pound ....

b $\frac{1}{2}$ milliard pound ....

c $\frac{3}{4}$ milliard pound ....

6 Express the following numbers in terms of million.

a 2 milliard .

b $3\frac{1}{2}$ milliard .

c 10 milliard .

Lesson 4 Operations on Large Numbers

First: Adding and Subtracting Large Numbers

Example : A Factory produced fertilizer in year 450 thousand tons and in the next year produced 642 thousand tons .

(a) Find the sum of production in the two years .

(b) Find the amount of increase .

the solution

a

```
    4 5 0 0 0 0
+   6 4 2 0 0 0
---------------
= 1 0 9 2 0 0 0
```

b

```
    6 4 2 0 0 0
–   4 5 0 0 0 0
---------------
=   1 9 2 0 0 0
```

Exercise 4

1 Add, then use the calculator to check your answer.

a

```
    8 752 013
+     439 815
-------------
= ...............
```

b

```
    2 560 000
+   5 981 812
-------------
= ...............
```

c

```
    1 465 789
+   5 984 078
-------------
= ...............
```

d

```
    2 107305
+   5 760119
-------------
= ...............
```

2 Find the difference in each of the following.

a
```
    2 256 912
 –  1 145 810
 = ……………
```

b
```
    6 444 382
 –  4 317 159
 = ……………
```

c
```
    9 000 100
 –  8 087 089
 = ……………
```

d 9887000 −7115306 = ...

3 In the 2008-09 governomental budget and in the context of the governomental efforts to support basic commodities, 2 milliard pounds were allocated for that perpouse, 405 million pounds to maintain the prices of medicines and 750 million pounds to reduce the interest on housing loans. Find the total sum for the three items in the governomental expenditure.

Complete the solution:

	2 000 000 000 pounds	support basic commodities
	405 000 000 pounds	maintain prices of medicine
+	750 000 000 pounds	reduce interest of housing loans
=	……………… pounds	governomental expenditure

4 Circle the number nearest to the correct answer, without performing the usual addition operation.

a 7 256 312 – 7 056 300 = ……………
(200 million , 200 thousand , 250 thousand)

b 8 205 107 – 3 198 119 = ……………
(8 milliard , 6 milliard , 5 million)

c 459 212 – 350 200 = ……………
(hundred and ten thousand , hundred thousand , milliard)

d 9 575 100 – 4 275 090 = ……………
(two milliard , 5 million , 850 million)

5 Circle the number nearest to the correct answer, without performing the usual subtraction operation.

a 5 260 180 + 7 985 954 = ...

(900 million . milliard . 13 million)

b 8 400 100 + 26 000 50 = ...

(11 million . 7milliard . 6milliard)

c 6 005 218 + 3 095 235 = ...

(9 million . 8and falf million . 10 million)

6 If the income from the advertisements during the African Football Cup of Nations 'Ghana 2008' for the Egyptian Channel Two was 21 million and eight hundred thousand pounds, for Nile Sports TV seven hundred thousand pounds and Youth and Sports Radio Channel five hundred and eight thousand pounds. Find the total income acheived by the three destinations from the advertisements.

7 If the budget allocated to support drinking water increased in two consecutive years from 270 250 000 pounds to 750 180 000 pounds. Find the amount of increase.

8 If the budget allocated to support medicine in two consecutive years increased from 380 million pounds to 405 million pounds to preserve the prices of medicine. Find the amount of the increase.

9 Find the number that if:

a subtracted from one milliard, the result is 758 209 312.

b added to it 7 812 159, the result will be ten million.

c 270 408 213 is subtracted from it, the result will be 18 200 999.

Second : Multiplying a Whole Number by Another

a Multiplying by a 1-digit Number

Example: Find the product of: 357 4 = …………….

```
      300 + 50 + 4
x                4
-----------------
      1200+200+16 = ........
      354 x 4 = 1416
```

```
    354
x     4
-------
     16        sixteen
+   200        20 tens
+1200          12 hundreds
-------
   1416
```

Drill 1:

Find the product of 9318 x 8

```
    9318
      8x
--------
.................
+     80
+..............
+..............
----------------
.................
```

(8+....+....+....+)x8=....+....+....+....=....

Drill 2:

Find the product as the examples.

Example 1:

```
   (2) (6)
    9 308
  ×     8
  -------
 =  74 464
```

Example 2:

```
  (1)(2)(2)(3)(3)(4)
    8 354 679
  ×         5
  -----------
 = 41 773 395
```

a

```
   7 354
 ×     4
 -------
 = .........
```

b

```
   83 204
 ×      8
 --------
 = ...........
```

c

```
   3 605 421
 ×         6
 -----------
 = ..............
```

Use the calculator to check your answers.

Drill 3:

Mostafa bought two kinds of cloth, the price of one metre of the first kind is 97 pounds and the price of one metre of the second is 158 pounds. If Mostafa bought 4 metres of the first kind and 3 metres of the second, how many pounds did Mostafa pay?

Solution:

Price of first kind = 97 × 4 = ... pounds

Price of second kind = 158 × 3 = ... pounds

Mostafa paid = ... + ... = ... pounds

b Multiplying by a 2-digit Number

Drill 1:

Find the product as the examples.

Example 1:

$27 \times 53 = 27 \times (3 + 50)$

$= 27 \times 3 + 27 \times 50$ (2) (3)

$= 81 + 1\,350$

$= 1\,431$

Example 2:

```
      5 3
  ×   2 7
  -------
    3 7 1
+ 1 0 6 0
  -------
= 1 4 3 1
```

(Notice that the product is the same even with different methods, use a calculator to check your answer.)

24 43 = 24 (......... + 40)

= 24 3 + ...

= .... + ...

= ....

```
     43
     24
  ---------
  .........
+ .........
  ---------
= .........
```

Drill 2:

Find the product of 4   12   25 using more than one method.

First Method:

(4   12)   25
= 48   25
= 48   (5 + ...)
= .... + ...
= ...... + ... = ...

Second Method:

4   (12   25)
= 4   12   (5 + 20)
= 4   (12   5 + ...)
= 4   (......... + ...)
= 4   .... + 4   ....
= .... + ... = ...

Drill 3:

A school took the opportunity of the Cairo International Book Fair and sent delegates to buy some books for the book library. Using the part of the invoice opposite, answer the following questions.

No.	Quantity	Unit Price	Total Price
1	12	34	
2	15	42	
3	18	48	
Grand Total:			

a What is the number of books that cost 34 pounds each and what is their total price?

b What is the number of books that cost 42 pounds each and what is their total price?

c What is the number of books that cost 48 pounds each and what is their total price?

d Find the total amount of money required from the school.



With your teacher, discuss the benefits of holding the annual Cairo International Book Fair in Egypt and its annual timing.

Exercise 5

1 Find the product for each of the following.

a 123   15 **b** 2 784   8 **c** 5 467   84

d 23 278   49 **e** 475 209   23 **f** 3 785   17

Use the calculator to check your answer.

2 Complete using a suitable digit in each □ .

a

□ 4 5
7
= 4 5 □ 5

b

□ 3 5
□ 8
= 7 4 □ □
+ □ □ 7 0 0
□ □ □ □ □

c

□ 4 □ 4 □ 8
7 5
= 1 7 0 2 0 4 0
+ □ □ □ □ □ □ □ □
= □ □ □ □ □ □ □ □

3 In one of their happy occasions, a family bought 18 kilograms of meet for LE 35 a kilogram and 16 litres of juice for PT 400 a litre. How many pounds did the family pay?

4 A man wanted to build a house for his family. He bought 15 tons of building steel for LE 7 356 a ton and 48 tons of cement for LE 475 a ton. How much did the man pay?

5 Choose the number nearest to the correct answer, without performing the multiplication operation.

a 25   977   4 = ...

(9 000 , 10 000 , 110 000)

b 40   75   50 = ...

(300 thousand , 200 thousand , 500 thousand)

c 100   99   98 = ...

(900 thousand , 800 thousand , one million)

d 125   48 = ...

(five thousand , six thousand , seven thousand)

Third : Dividing a Whole Number by Another

a Dividing by a 1-digit Number

Example: Divide 568 ÷ 2

Solution:

We know that 568 = 5 hundreds + 6 tens + 8 units
= 4 hundreds + 16 tens + 8 units

Then, 568 ÷ 2 = (400 + 160 + 8) ÷ 2
= (400 ÷ 2) + (160 ÷ 2) + (8 ÷ 2)
= 200 + 80 + 4 = 284

Drill 1:

Follow the steps of the following example to carry out the division operation: 459 ÷ 3

Complete the solution:

459 = 4 hundreds + 5 tens + …… units
= 3 hundreds + 15 tens + …… units

459 ÷ 3 = (300 + 150 + ……) ÷ 3
= (300 ÷ 3) + (……… ÷ 3) + (…… ÷ ……)
= ……… + ……… + ……… = ………

Note: You can perform the previous steps mentally and write the quotient directly as shown in the following example.

Example: Divide 742 ÷ 2

Solution: 7 4 2 ÷ 2 = 3 7 1 (carry 1 marked above the 4)

Drill 2:

Write the quotient directly for each of the following division operations, then use the calculator to check your answer.

a 946 ÷ 2 **b** 486 ÷ 3

c 847 ÷ 7 **d** 655 ÷ 5

Dividend and Divisor

When dividing a number by another, the first number is called the **dividend** and the second is called the **divisor**.

For example, in the division operation 54 ÷ 9,
54 is the dividend and 9 is the divisor.

Quotient and Remainder

Example: We have 17 pens that need to be distributed equally among 3 children. Find the greatest number of pens that can be given to every child.

Solution: Directly is 5 pens and 2 pens are left
because 5 3 = 15 and 17 – 15 = 2

In this example the **quotient** is 5 and the **remainder** is 2.

Then, 17 = 5 3 + 2

Complete the following table as the example.

The division operation	The dividend	The divisor	The quotient	The remainder	Relation between elements of division operation
78 ÷ 9	78	9	8	6	78 = 9 × 8 + 6
43 ÷ 2	....	....	21	....	....
77 ÷ 5	....	5	....	2	....
64 ÷ 4	....	....	....	0	....

The dividend = The divisor x The quotient+ The remainder

b Dividing a Whole Number by a 2-digit Number with remainder

Example: Find the quotient of the division without remainder 3915 ÷ 15

Solution

3915 ÷ 15 = 261

```
       0 2 6 1
  15 | 3 9 1 5
      -3 0
       9 1
      -9 0
       1 5
       1 5
       0 0
```

Drill 3:

a 2 430 ÷ 18 = ...   18 | 2 4 3 0

b 1815 ÷ 15 = ...   15 | 18 1 5

(check your answer by using the calculator or any other method.)

Exercise 6

1 Complete using a suitable sign <, >, or = in each ☐ without performing the division operation.

a 2 538 ÷ 18 ☐ 2 538 ÷ 37

b 720 ÷ 9 ☐ (72 ÷ 9) × 10

c 100 × (2448 ÷ 24) ☐ 24480 ÷ 24

2 Find the quotient of each of the following division operations, without using the calculator.

a 3 654 ÷ 3 **b** 18 905 ÷ 5

c 350 714 ÷ 7 **d** 390 130 ÷ 13

3 Find the quotient and the remainder for each of the following.

a 2 312 ÷ 68 **b** 3423 ÷ 62 **c** 9327 ÷ 28

d 96 960 ÷ 48 **e** 70 070 ÷ 35 **f** 64 064 ÷ 16

4 Find

a The number that if divided by 69, the quotient is 2358 .

b The number that multiplied by 54, the product is 4158 .

5 The daily production of a factory producing garments from one clothing item is 738 units and from a second item is 945 units. The box used for packaging the actory production for export can hold 18 units of the first kind or 15 units of the second. Find:



a The number of boxes consumed by the factory daily.

b The daily remainder from each kind produced.

6 Adel bought a flat in a housing tower for LE 168 940. He paid LE 100 000 as a down payment and the rest on 18 equal installments. Find the value of each installment.

Unit 1 Activities

Activity 1

Numerals and Numbers

- **a** Find the smallest number formed from 10 different digits.
- **b** Find the greatest number formed from 10 different digits.
- **c** Find the smallest even number formed from 10 different digits.
- **d** Find the greatest odd number formed from 10 different digits.
- **e** Find the smallest number formed from 10 different digits and the sum of its units and tens digit numbers equals 3.
- **f** Find the greatest number formed from 10 different digits and the sum of its units and tens digit numbers equals 9.

Activity 2

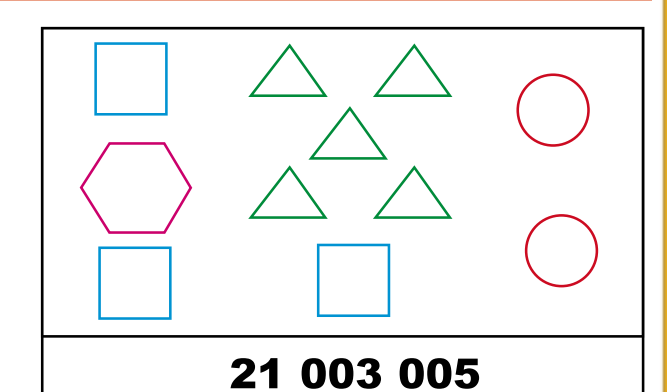
Write three numbers each is formed from four different digits of 9, 6, 5, 4 and 0 such that:

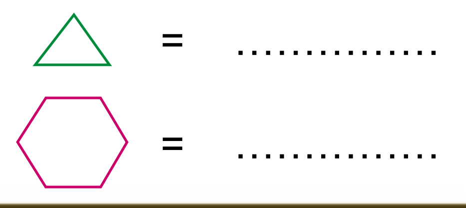
the first is nearest to 4 000
the second is nearest to 5 000
the third is nearest to 6 000

Activity 3

Notice and deduce

In the figure opposite, geometric shapes were drawn to express the number 21 003 005. Deduce the possible numerical value of each of the following shapes.





○ = ... △ = ...

□ = ... ⬡ = ...

General Exercises on Unit 1

1 Find the result for each of the following.

- **a** 87 562 + 5 429 = ...
- **b** 39 057 – 14 583 = ...
- **c** 3 478   9 = ...
- **d** 721 014 ÷ 7 = ...
- **e** 267   18 = ...
- **f** 62 550 ÷ 25 = ...

2 Complete.

a Write the value of the underlined digit in each of the following numbers.

$\underline{3}$ 256 812 159 , 9$\underline{5}$8 214 100 , 7 100 $\underline{2}$79 312

.... , ... , ...

b Write the numbers of **a** in words.

c If 458   29 = 13 282, then:

- **i** 13 282 ÷ 29 = ...
- **ii** 13 282 ÷ 458 = ...
- **iii** 13 291 = ...   29 + ...

3 Circle the number nearest to the correct answer.

a 7 815 100 + 1 475 987 = ...

(9 million , milliard , 990 million)

b 9 145 000 – 8 142 000 = ...

(3 000 , million , 200 million)

c 8   6 958   125 = ...

(7 million , 6 million , 5 million)

d (4 000 ÷ 4)   999 = ...

(one million , one milliard , 900 thousand)

4

a If 756 pupils in a school are distributed equally among 18 classes, find the number of pupils in each class.

b Find the number that if multiplied by 17, the product will be 1 156.



Unit Two

Geometry

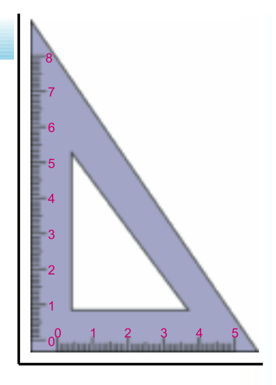
- Relation Between Two Straight Lines
- Polygons
- The Triangle
- Applications
- Unit 2 Activities
- General Exercises on Unit 2

Lesson 1

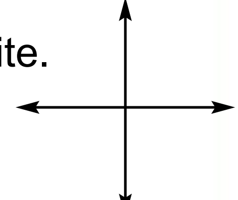
Relation between Two Straight Lines and Geometric Constructions

Drill 1:

a Use the set square, that you have in your geometric instruments, to draw a right angle, as shown in the figure opposite.



b Complete the straight lines to get the figure opposite.



c The two straight lines that you got are called **perpendicular** straight lines.

d Measure the four angles resulted from the two straight lines at their point of intersection, you will find that the measure of each of them = ...˚. (if your measure is 90˚, then your drawing is correct)

e From all previous points, we can say that:
the two perpendicular straight lines make an angle with measure ....˚.

Write the greatest number of examples of perpendicular lines that you can see in your environment.

- The edges of the right angle in a set-square.

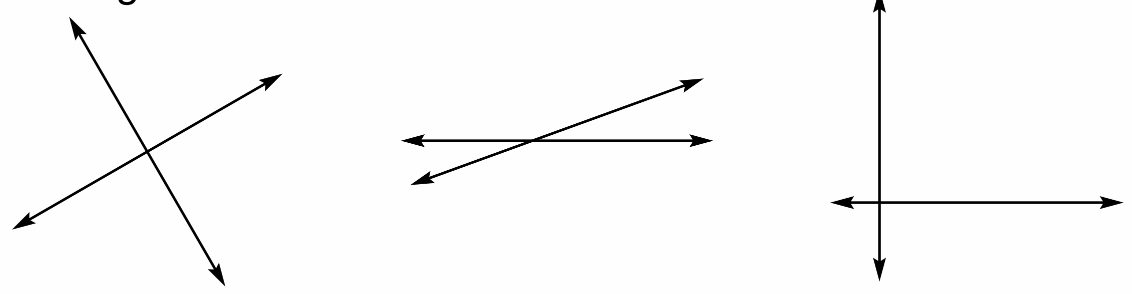


- The vertical and horizontal edges of the door.
- ....
- ....
- ....

If the measure of the angle between two straight lines is not equal to 90° (acute or obtuse), then the two straight lines are **intersecting** and not perpendicular.

Drill 2:

Join each figure to the suitable statement.



Two straight lines, intersecting and not perpendicular .

Two straight lines, intersecting and perpendicular.

(you can use your geometric instruments.)

Drill 3:

a Draw two straight lines on two lines of your copybook, as shown in the figure below.

b Do you expect these straight lines to intersect if they were extended from both sides?

(yes ☐ , no ☐)

These two straight lines are called **parallel lines**.

Write the greatest number of examples of parallel lines that you can see arround you.

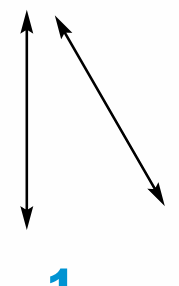


- The lines of the copy-book.
- The two edges of the ruler.
- ....
- ....
- ....
- ....
- ....

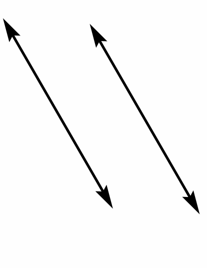
Note:
You can draw two parallel lines using the two edges of your ruler, as shown in the figure opposite.

Drill 4:

Join each figure to the suitable statement, use your geometric instruments to be sure.

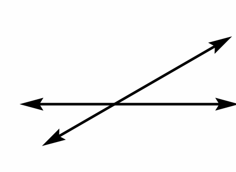


1



2

3



4

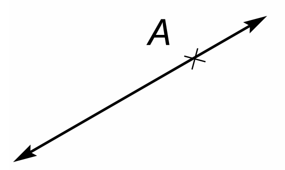
Two parallel lines

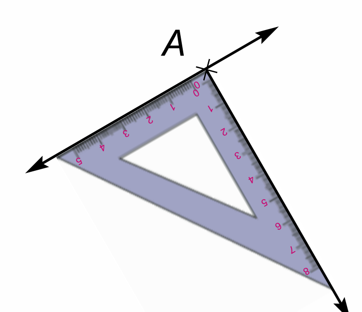
Two lines, intersecting and not perpendicular

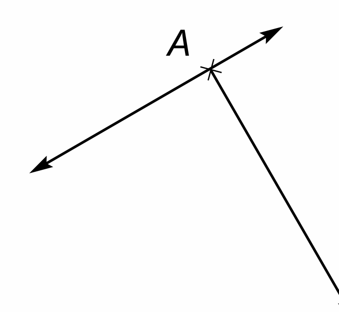
Two lines, int
and perpendi

Drill 5:

How to draw a perpendicular to a straight line from a point on it.



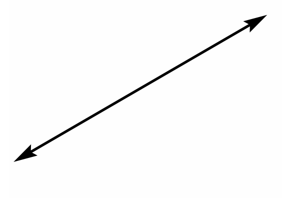


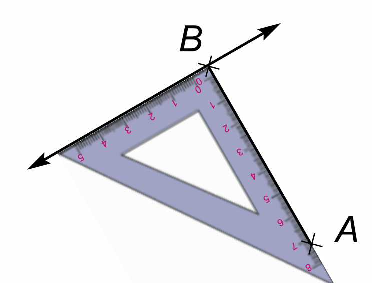


Notice and draw.

Drill 6:

How to draw a perpendicular to a straight line from a point outside it.



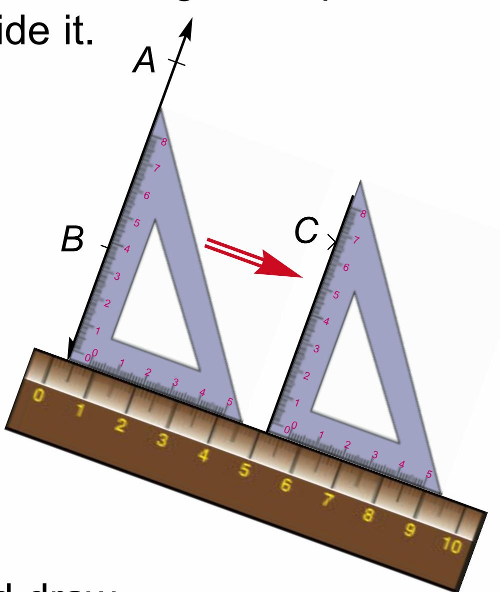


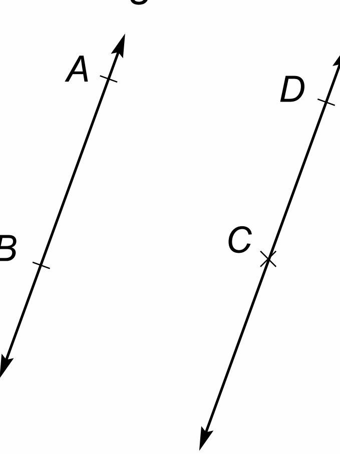
Notice and draw.

In this case, we write $\overline{AB} \perp \overleftrightarrow{BC}$.

Drill 7:

How to draw a straight line parallel to a given straight line from a point outside it.





Notice and draw.

In this case, we write $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$.

Exercise 1

1 Write the relation between each two straight lines under each figure.

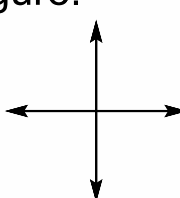


Figure 1

....

Figure 2

....

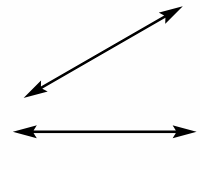


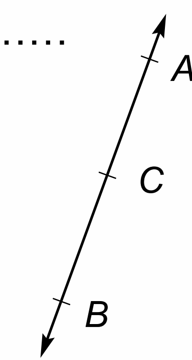
Figure 3

....

2 Draw the perpendicular $\overline{CE}$ on the given straight line $\overleftrightarrow{AB}$.

Then, complete.

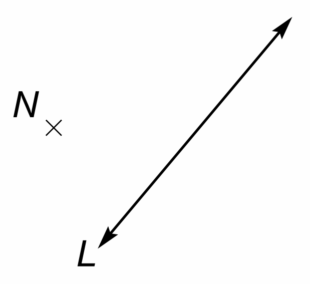
m(∠BCE) = m(∠.........) = ...°.



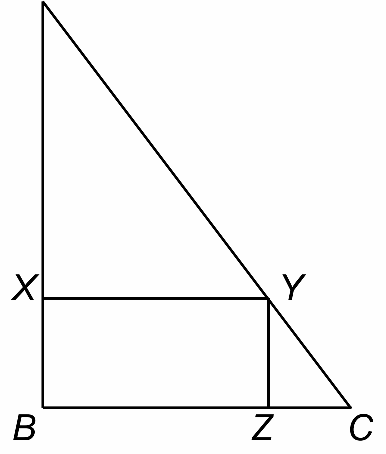
3 Draw a perpendicular from the point X on the given straight line $\overleftrightarrow{YZ}$, then complete.

If O is the point of intersection of the drawn perpendicular and the straight line $\overleftrightarrow{YZ}$, then m(∠XOY) = m(∠.........) = ...°.

4 Draw a straight line parallel to the given straight line L and passing through the point N.



5 Notice the figure opposite, then complete.



a $\overleftrightarrow{AB}$ .... $\overleftrightarrow{BC}$ (⊥ or //)



b $\overleftrightarrow{AB}$ .... $\overleftrightarrow{YZ}$ (⊥ or //)

c $\overleftrightarrow{XY}$ .... $\overleftrightarrow{BC}$ (⊥ or //)

d $\overleftrightarrow{AY}$ intersects with $\overleftrightarrow{BZ}$ at the point ....

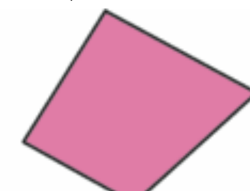
e $\overleftrightarrow{YC}$ intersects with $\overleftrightarrow{BX}$ at the point ....

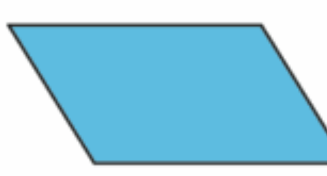
Lesson 2 Polygons

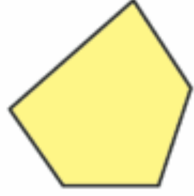
Drill 1:

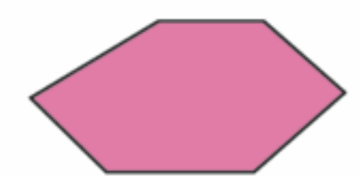
Notice the following polygons, then complete.


Figure 1


Figure 2


Figure 3


Figure 4


Figure 5

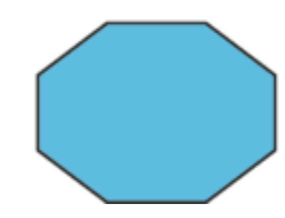

Figure 6

Figure number	The number of Sides	The number of Vertices	The number of angles
1	…………	…………	…………
2	…………	…………	…………
3	…………	…………	…………
4	…………	…………	…………
5	…………	…………	…………
6	…………	…………	…………

What do you notice?

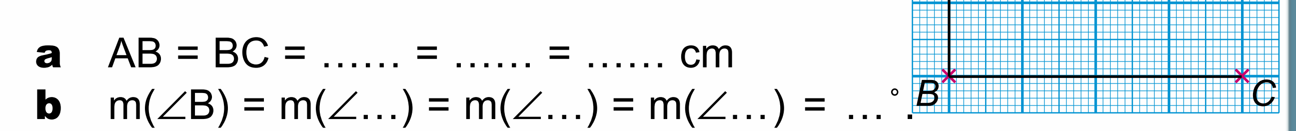
The relation between the number of sides of a polygon with respect to the number of its vertices and the number of its angles.

Notice that, for any polygon:

Number of sides …… Number of vertices …… Number of angles

Drill 2:

Complete drawing the square ABCD, then answer the following (consider the unit of length = 1 cm).



a AB = BC = …… = …… = …… cm

b m(∠B) = m(∠…) = m(∠…) = m(∠…) = …°.

Notice that m(∠B) can be written instead of measure (∠B) for simplicity.

c From all the above, it can be said that the square is a ……… (pentagon , quadrilateral , hexagon) that has ……… sides that are ……… in length and ……… angles that are ……… in measure and the measure of each is ………° (check by drawing other squares on graph paper).

d Using your geometric instruments, check that AC = BD and for other squares that you drew on graph paper, you will find that the diagonals of the square are always equal in length.

Notice: In any quadrilateral, the **diagonal** is the line segment joining two non-consecutive vertices.

From the above, we deduce that the diagonals of the square are equal in length.

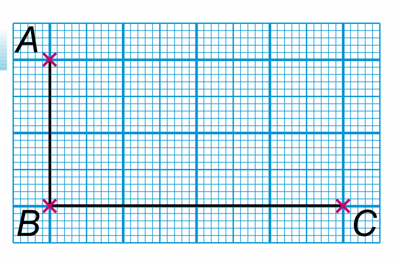
e Using the set-square, or the protractor, check that $\overline{AC} \perp \overline{BD}$ and similarly for other squares that you drew on graph paper.

From the above, we deduce that the diagonals of the square are perpendicular.

f If M is the point of intersection of $\overline{AC}$ and $\overline{BD}$, use the geometric instruments to check that MA = MB = MC = MD and similarly for other squares that you drew on graph paper.

From the above, we deduce that the diagonals of the square bisect each other.

Drill 3:



Complete drawing the rectangle ABCD, then answer the following (consider the unit of length = 1 cm).

a AB = …… = …… = …… cm and BC = …… = …… = …… cm

i.e. In the rectangle, every two opposite sides are ……… in length.

b m(∠B) = m(∠…) = m(∠…) = m(∠…) = …°.

i.e. In the rectangle, all angles are ……… in measure and the measure of each is ……°.

c From all the above, it can be said that the rectangle is a ……… that has ……… sides and every two opposite sides are ……… in length and ……… angles that are ……… in measure and the measure of each is ………° (check by drawing other rectangles on graph paper).

d Use the geometric instruments to identify the relation between $\overline{AC}$ and $\overline{BD}$ and similarly for other rectangles that you drew on graph paper.

i.e. In the rectangle, the diagonals are ……… in length.

e Using the set-square, or the protractor, check that $\overline{AC}$ and $\overline{BD}$ are not perpendicular and similarly for other rectangles (not squares) that you drew on graph paper.

i.e. The diagonals of the rectangle are not perpendicular.

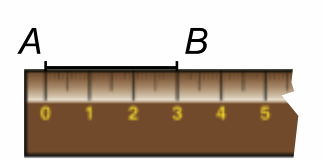
f If N is the point of intersection of $\overline{AC}$ and $\overline{BD}$, use the geometric instruments to check that NA = NC and NB = ND and similarly for other rectangles that you drew on graph paper.

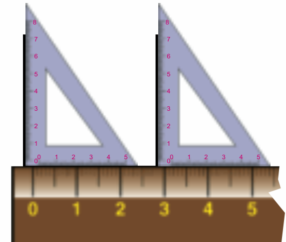
i.e. The diagonals of the rectangle bisect each other.

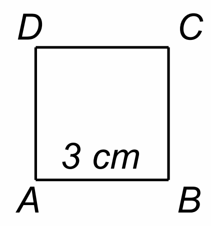
Drill 4:

Without using graph paper or squared paper, can you draw a square, given its side length?

Required: Draw the square ABCD whose side length 3 cm long.





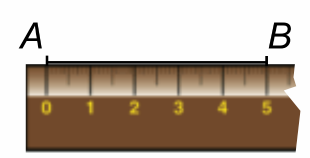


Notice and draw.

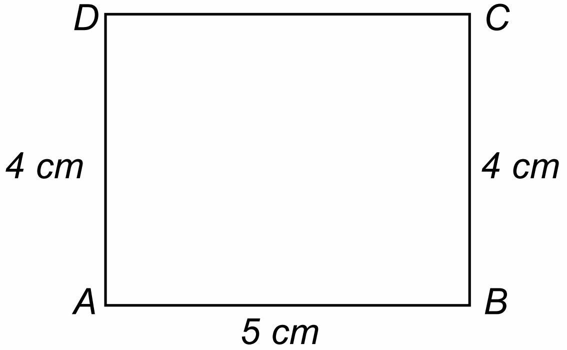
Drill 5:

Without using graph paper or squared paper, can you draw a rectangle, given its dimentions?

Draw the rectangle ABCD in which AB = 5 cm and BC = 4 cm.

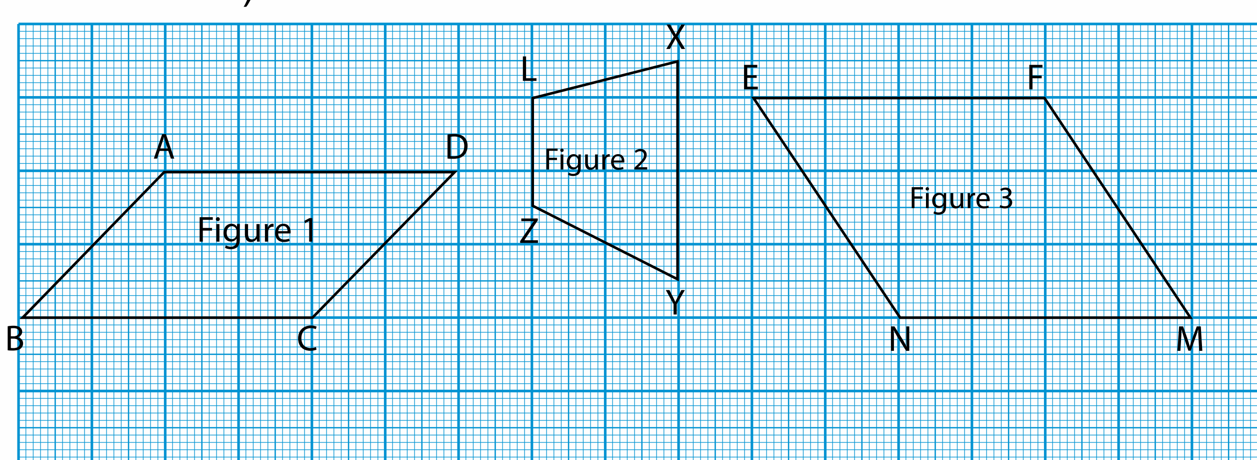


Notice and draw.



Drill 6:

Notice, then answer the following questions (use your geometric instruments).



a Is figure **1** a **rhombus**? ……… Why? ………………………
Because AB ≠ ……………

b In figure **1**, $\overline{AB}$ // ……… and $\overline{AD}$ // ………
i.e. Each two opposite sides are …………………………………
- The figure is called a **parallelogram**.

c Is figure **2** a parallelogram? ……… Why? ………………………
Because $\overline{XY}$ // ……, but $\overline{XL}$ is not parallel to ……
- This figure is called a **trapezium**.

d Is figure **3** a parallelogram? ……… Why? ………………………
Because $\overline{MN}$ // …… and $\overline{MF}$ // ……

e In figure **3**, MN = NE = …… = ……
i.e. Figure **3** is a **quadrilateral** and its sides are ……… in length.
- This figure whose four sides are equal in length is called a rhombus.

Drill 7:

Join each figure to the suitable name.

Rectangle **Rhombus** **Parallelogram** **Trapezium** **Square** **Triangle**

Exercise 2

1 Join each figure to the suitable name.

Rectangle **Trapezium** **Triangle** **Rhombus** **Square** **Parallelogram**

2 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

- **a** The angles of a rectangle are right. ( )
- **b** The sides of a square are equal in length. ( )
- **c** The opposite sides of a parallelogram are parallel. ( )
- **d** The measure of any angle of the square = 45°. ( )
- **e** Any of the four angles formed from the intersection of two straight lines is a right angle. ( )
- **f** Any angle of the four angles formed from the intersection of two perpendicular straight lines is a right angle. ( )
- **g** Two parallel straight lines are two non-intersecting straight lines. ( )
- **h** Two perpendicular straight lines on the same straight line are intersecting straight lines. ( )
- **i** The two diagonals of the square are perpendicular. ( )

3 Draw the square ABCD with side length 4 cm, then complete.

- **a** AB = …… = …… = …… = …… cm.
- **b** $\overline{AB}$ // …… and $\overline{BC}$ // ……
- **c** $\overline{AB}$ ⊥ ……, $\overline{CD}$ ⊥ …… and $\overline{BD}$ ⊥ ……

4 Draw the rectangle XYZL in which its two dimensions are 5 cm and 2 cm, then complete.

- **a** XY = …… = …… cm and YZ = …… = …… cm.
- **b** $\overline{XY}$ // …… and $\overline{XY}$ ⊥ ……
- **c** $\overline{YZ}$ // …… and $\overline{YZ}$ ⊥ ……

5 Complete the following. In the quadrilateral:

- **a** Each two opposite sides are parallel in ………, ………, ……… and ………
- **b** Each two opposite sides are equal in length in ………, ………, ……… and ………
- **c** The four sides are equal in length in ……… and ………
- **d** The four angles are right in ……… and ………
- **e** The two diagonals in ……… and ……… are equal and bisect ……….

Lesson 3 The Triangle

Drill 1:

Notice the figure opposite, then complete.

a The sides of the triangle ABC are $\overline{AB}$, …… and ……



b The vertices of the triangle are A, … and …

c The angles of the triangle ABC are ∠A, ∠… and ∠…



d The triangle is ……… (a polygon , an open curve), it has … sides and … angles.

Identifying the Type of the Triangle According to the Measure of its Angles

Drill 2:

Notice the following triangles, then complete.

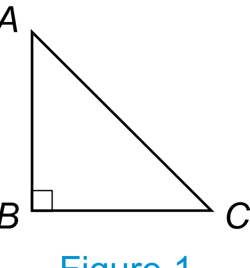


Figure 1

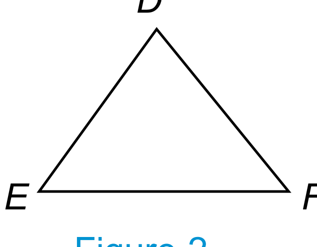


Figure 2

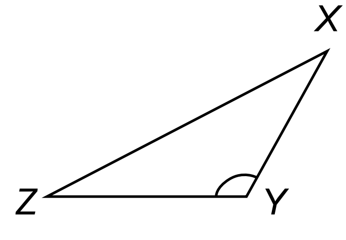


Figure 3

a In ΔABC, ∠……… is a right angle, for that the triangle is called a **right-angled** triangle.

Question: Can you draw a triangle with two right angles?

b In ΔDEF, its three angles are ………, for that the triangle is called an **acute-angled triangle**.

c In ΔXYZ, ∠……… is an obtuse angle, for that the triangle is called an **obtuse-angled triangle**.

Question: Can you draw a triangle with two obtuse angles?

Drill 3:

Notice the following triangles, then complete.

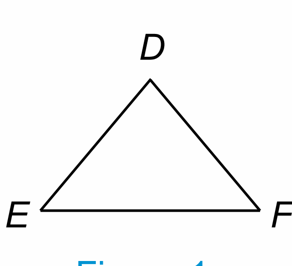


Figure 1

Figure 2

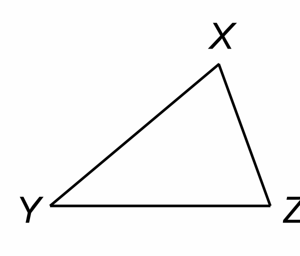


Figure 3

a In figure 1, use the compasses to check that DE = DF. This triangle is called an **isosceles triangle**.

b In figure 2, use the compasses to check that AB = BC = CA.

i.e. the three sides of the triangle are ……… in length. This triangle is called an **equilateral triangle**.

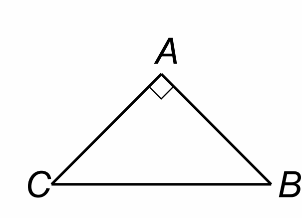
Questions Is the equilateral triangle Isosceles? ……………

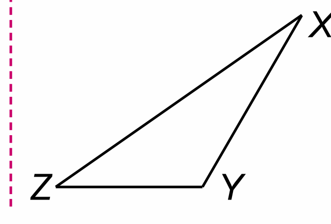
Is the isosceles triangle equilateral? ……………

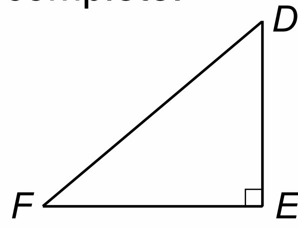
c In figure 3, use the compasses to check that the three sides of the triangle are different in length. This triangle is called a **scalene triangle**.

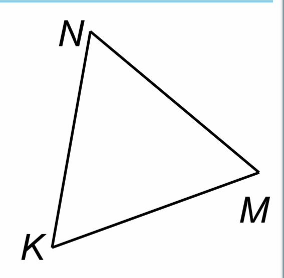
Drill 4:

Notice the following triangles, then complete.









a What is the type of the ΔABC according to its:

side lengths? ………… angles measures? …………

b What is the type of the ΔXYZ according to its:

side lengths? ………… angles measures? …………

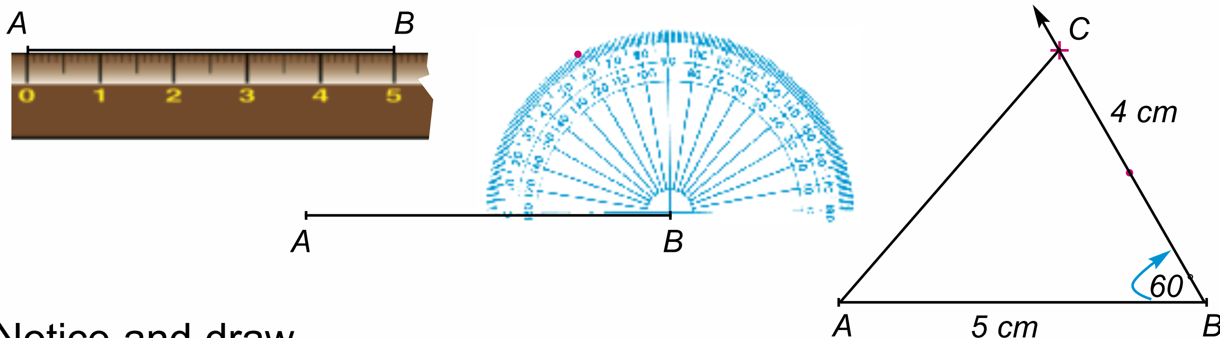
c What is the type of the ΔDEF according to its:
side lengths? .... angles measures? ....

d What is the type of the ΔNKM according to its:
side lengths? .... angles measures? ....

Drawing a Triangle given the Length of two Sides and the Measure of the Included Angle

Drill 5:

Draw ΔABC in which AB = 5 cm,
BC = 4 cm and m(∠B) = 60˚.



Notice and draw.

Practice (1) :

Draw ΔXYZ in which XY = 7 cm, YZ = 5 cm and m(∠Y) = 40˚.

Practice (2) :

Draw ΔDEF in which ∠D is right, DE = 3 cm and EF = 4 cm.
Measure the length of $\overline{DF}$, then answer the following questions.

a Calculate the perimeter of ΔDEF, given that the perimeter of any polygon = the sum of its side lengths.

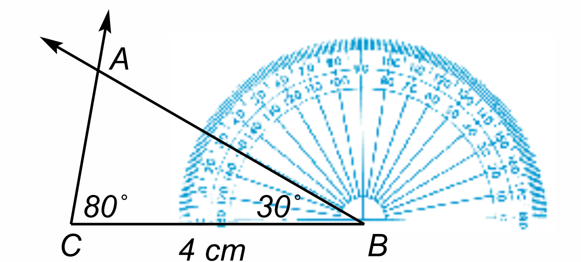
b What is the type of the triangle, according to the measures of its angles? ....
(acute-angled , obtuse-angled or right-angled)

c What is the type of the triangle, according to the length of its sides? ....
(isosceles , equilateral or scalene)

Drawing a Triangle Given the Measure of Two Angles and the Length of One Side

Drill 6:

Draw ΔABC in which BC = 4 cm, $m(\angle B) = 30^\circ$ and $m(\angle C) = 80^\circ$.



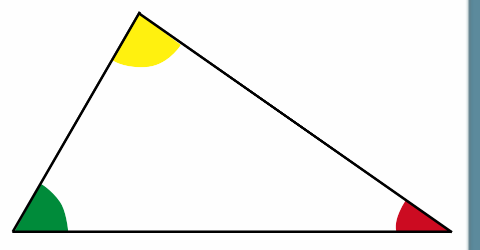
Notice and draw.

The Sum of Measures of the Angles of the Triangle

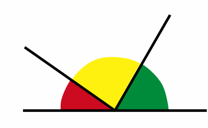
Drill 7:

a Draw any triangle on a piece of cardboard paper.

b Colour the angles of the triangle at its vertices in red, green and yellow as shown in the figure opposite.



c Use the scissors to cut the three angles and fix them on a piece of paper as shown in the figure.



Notice: The three angles together formed a straight angle and we know that the measure of the straight angle is 180°. Then, we deduce that:

The sum of measures of the interior angles of any triangle = 180°.

Drill 8:

Draw the triangle ABC in which $\angle B$ is a right angle, $m(\angle C) = 60^\circ$ and BC = 4 cm. Measure $\angle A$, then check that the sum of measures of angles of a triangle is 180°.

Drill 9:

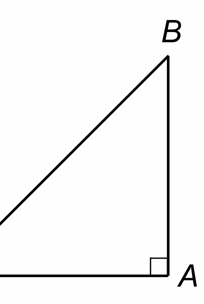
Draw ΔXYZ in which = XY = 7cm, m(∠X) = 100˚, and m(∠Y) = 50˚. Measure (∠Z), then answer:

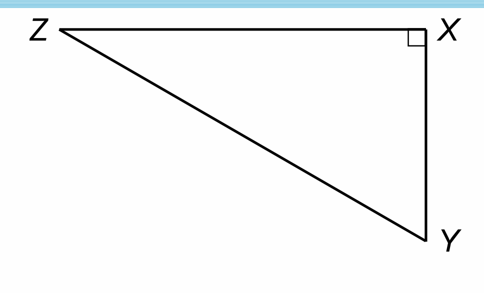
a What is the sum of the measures of angles of ΔXYZ? ....˚

b What is the type of the triangle XYZ according to the measures of its angles? ....

Drill 10:

Use the two set-squares in your geometric instruments box to draw two triangles as shown in the figure opposite, then answer:





a Measure the angles of each triangle, then complete.

i The sum of the measures of angles of ΔABC equals
.........˚ + ...˚ + ...˚ = ...˚

ii The sum of the measures of angles of ΔXYZ equals
.........˚ + ...˚ + ...˚ = ...˚

b What is the type of ΔABC according to its side lengths? ....
(scalene , equilateral , isosceles)

c What is the type of ΔXYZ according to its side lengths? ....
(scalene , equilateral , isosceles)

Exercies 3

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a There can be two right angles in one triangle. (   )

b There can be three acute angles in one triangle. (   )

c There can be a right angle and an obtuse angle in one triangle. (   )

d The measure of the straight angle = the sum of the measures of the angles of a triangle. (   )

2 Draw ΔLMN in which MN = 6 cm, $m(\angle M) = 40^\circ$ and $m(\angle N) = 70^\circ$.

a Without using the protractor, find $m(\angle L)$.

b What is the type of the triangle according to the measures of its angles?

c What is the type of the triangle according to its side lengths? (measure the lengths of the sides)

3 Draw ΔXYZ in which XY = 5 cm, $m(\angle X) = m(\angle Y) = 45^\circ$.

a Without using the protractor find $m(\angle Z)$.

b What is the type of the triangle according to the measures of its angles?

c What is the type of the triangle according to its side lengths? (measure the lengths of its sides)

4 Draw ΔABC in which AC = 7 cm, $m(\angle A) = 45^\circ$, and $m(\angle C) = 75^\circ$.

a Calculate, mentally, $m(\angle B)$, then check your answer using the protractor.

b What is the type of the triangle according to the measures of its angles?

c What is the type of the triangle according to its side lengths? (measure the lengths of the sides)

5 Draw ΔDEF in which DE = 5 cm, EF = 6 cm and $m(\angle B) = 80^\circ$.

a What is the sum of the measures of the two angles $\angle FDE$ and $\angle DFE$?

b use the protractor to find $m(\angle DFE)$.

c Calculate $m(\angle FDE)$. (without measuring)

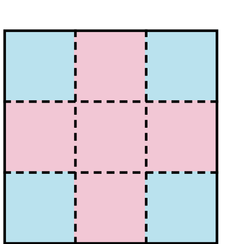
d What is the type of ΔDEF according to the measures of its angles and its side lengths?

Lesson 4 Applications

Question How to make a solid using cardboard paper?

Drill 1:

You can make a cube-shaped box without a lid as follows.



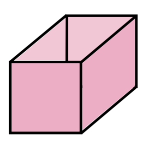
a Draw a square of (choose a proper side length, for example 30 cm, on cardboard paper.

b Divide the large square into 9 small squares, as in the figure.

c Use the scissors to cut the four blue squares in the four corners of your drawing.

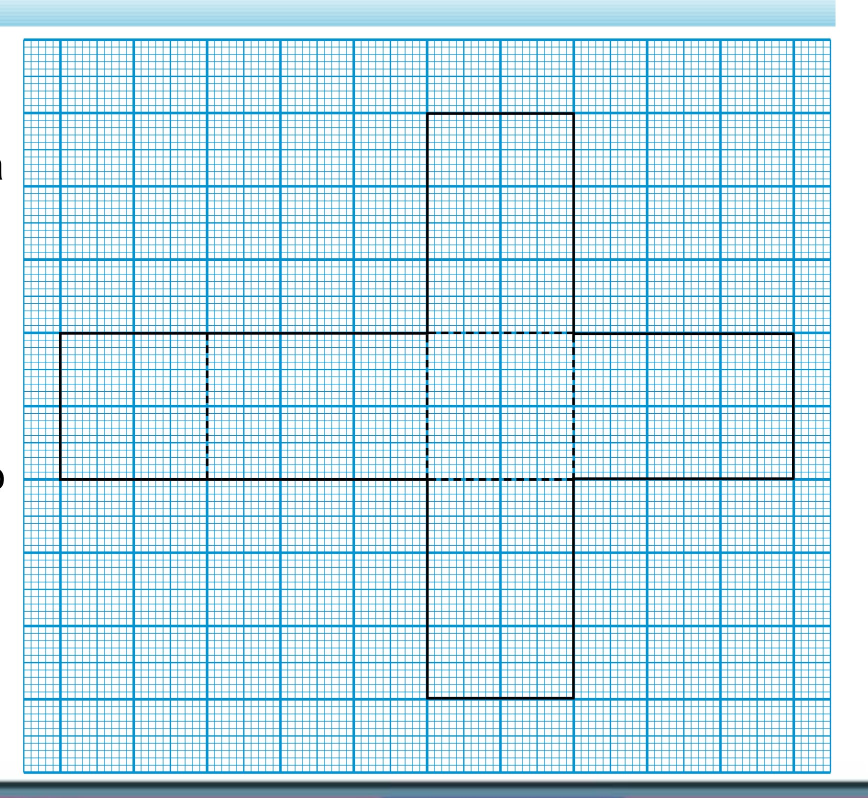
d Fold the remaining figure on the dotted lines

e Glue the edges, to get the solid opposite (a cube-shaped box without a lid).



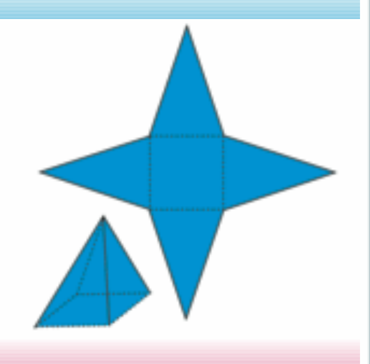
Drill 2:

You can make a cuboid-shaped box with a lid by drawing a figure with suitable dimensions (as in the figure opposite) on cardboard paper, fold on the dotted lines then glue the edges to get the resulted solid as in the figure below.

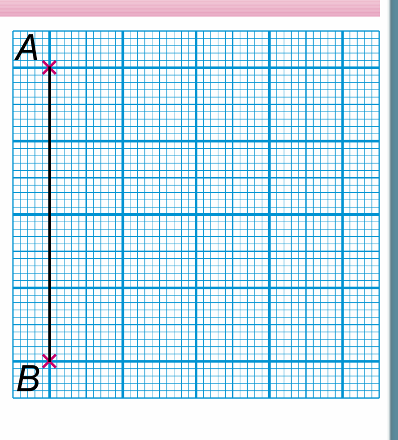


Drill 3:

You can make a pyramid with square-shaped base by drawing a figure with suitable dimensions as in the figure on cardboard paper, fold on the dotted lines then glue the edges and you will get the solid opposite.



Exercies 4



1
- **a** On the lattice, draw the square ABCD whose side length is 4 cm.
- **b** Draw $\overline{AC}$ and $\overline{BD}$.
- **c** Into how many triangles was the square ABCD divided?
- **d** Are these triangles congruent?
- **e** Divide each of these triangles into two congruent triangles.
- **f** Colour the resulted triangles in two different colours consecutively to get an ornamental nice figure.
- **g** With the aid of your teacher, use the 'Paint' program in your computer to do the final figure.



2 The figure opposite represents a rectangular-shaped hall. Its two dimensions are 6 m and 8 m. Two types of tiles were used to tile the hall as shown in the figure. Complete tiling in the same pattern, then answer the questions.
- **a** How many squared tiles are needed?
- **b** How many rectangular tiles are needed?

3 A square-shaped room of side length 4 metres. On squared paper, design a pattern of your choice where you use 2 or 3 different kinds of tiles to cover its floor.

Unit 2 Activities

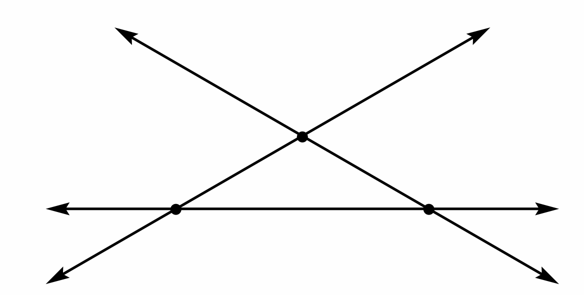
Activity 1

In the multimedia lab in your school and with the aid of your teacher, use the computer to draw the following geometric figures.

a Rectangle
b Square
c Triangle
d Other ornamental figures

Activity 2

In the figure opposite, three straight lines intersect at three points.



a What is the greatest number of intersection points can you get using four straight lines?

b What is the greatest number of intersection points can you get using six straight lines?

c What is the greatest number of intersection points can you get using six straight lines, if four of them are parallel?

d What is the greatest number of intersection points can you get using ten straight lines, if seven of them are parallel?

General Exercises on Unit 2

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

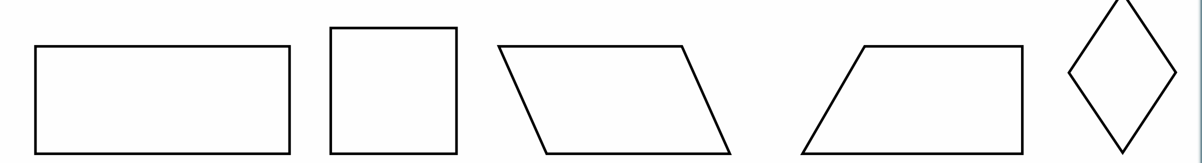
a If ABC is a triangle in which m(∠B) = 98°, then it is possible to be a right-angled triangle. (   )

b If XYZ is a triangle in which m(∠X) = 100° and m(∠Y) = 58°, then m(∠Z) = 30°. (   )

c The rhombus is a quadrilateral in which all sides are equal in length. (   )

d It is possible to draw a triangle given the measures of each of its angles. (   )

2 Join each figure to the suitable name.



Parallelogram **Rhombus** **Rectangle** **Square** **Trapezium**

3 Write only one difference between each of the following.

a The square and the rectangle.

b The triangle and the circle.

c The rhombus and the parallelogram.

d The square and the cube.

4 Draw The triangle ABC in which AB = 3 cm, BC = 4 cm and $m(\angle B) = 90^\circ$. Measure the length of $\overline{AC}$, then complete the rectangle ABCD and answer.

a Calculate the perimeter of each of the rectangle ABCD and the triangle ABC.

b What is the type of the triangle ABC according to:

i its side lengths. **ii** the measure of its angles.

5 In the opposite figure ABCD is a parallelogram complete

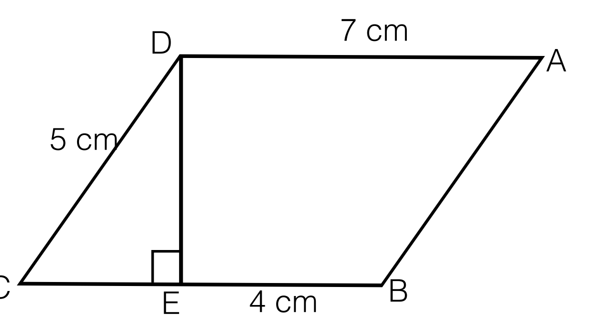
$\overline{DE} \perp$ ....

$\overline{AB}$ // ....

The shape ABED is ....

the perimeter of ABED is ....

the perimeter of $\triangle$ DEC is ....



Unit Three

Multiples, Factors and Divisibility

- Multiples
- Divisibility
- Factors and Prime Numbers
- Common Factors (H.C.F.)
- Common Multiples (L.C.M.)
- Unit 3 Activities
- General Exercises on Unit 3

Lesson 1

Multiples

Drill 1:

a Complete the following table.

× 2

0	1	2	3	4	5	6	7	8	9	10
0	2	4								

b Opposite is a set of consecutive numbers arranged in a table. Complete colouring using the same pattern.

0	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

c Complete.
The numbers written in the coloured squares are 0, 2, 4, ……
and they are the results of multiplication by ……

These numbers are called the multiples of the number 2

Note: **1** The units digit of each of these numbers is 0, 2, 4, 6 or 8.
2 Multiples of 2 are the even numbers that you studied before.

Generally:
If a number is multiplied by 2, then the product is a multiple of the number 2

Example: $17 \times 2 = 34$, hence 34 is a multiple of the number 2

Drill 2:

a Complete the following table.

$\times 3$

0	1	2	3	4	5	6	7	8	9	10
0	3									

b Opposite is a set of consecutive numbers arranged in a table. Complete colouring using the same pattern.

0	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27

c Complete.
The numbers written in the coloured squares are 0, 3, 6, ……
and they are the results of multiplication by ……

These numbers are called the multiples of the number 3

Generally:
If a number is multiplied by 3, then the product is a multiple of the number 3

Example: $21 \times 3 = 63$, hence 63 is a multiple of the number 3

d Complete.
The number 30 is a multiple of 3 because $30 = \ldots\ldots \times 3$
The number 24 is a multiple of … because $24 = \ldots\ldots \times 3$

Drill 3:

a Complete the following table.

$\times 5$										
0	1	2	3	4	5	6	7	8	9	10
0	5									

b Opposite is a set of consecutive numbers arranged in a table. Complete colouring using the same pattern.

0	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	32	33	34

c Complete.
The numbers written in the coloured squares are 0, 5, 10, ……
and they are the results of multiplication by ……

These numbers are called the multiples of the number 5

Generally:
If a number is multiplied by 5, then the product is a multiple of the number 5

Example: $32 \times 5 = 160$, hence 160 is a multiple of the number 5

Note: For the multiples of the number 5, the units digit of each of these numbers is 0 or 5

d Complete.
$17 \times 5 =$ …, then the number … is a multiple of the number 5
$42 \times 5 =$ …, then the number … is a multiple of the number 5

Drill 4:

The table below contains numbers from 0 to 49.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49

a Put a yellow point in the cells having a multiple of the number 2.
Put a red point in the cells having a multiple of the number 3.
Put a blue point in the cells having a multiple of the number 5.

b Complete. The numbers in the cells having yellow and red points are ....
each of these numbers is a multiple of ...... and ...... at the same time and is also considered a multiple of ......

c Complete. The numbers in the cells having yellow points only are ....
each of these numbers is a multiple of ...... and it is not a multiple of ...... or ......

d Complete. The numbers in the cells having yellow and blue points are ....
each of these numbers is a multiple of ...... and ...... at the same time and is also considered a multiple of ......

e Complete. The numbers in the cells having blue points only are
....
each of these numbers is a multiple of ...... and is not a multiple of ...... or ......

Exercise 1

1 Underline each number of the following that is a multiple of the number 2: 17 , 5 , 26 , 4 , 13 , 2 , 20

2 Underline each number of the following that is a multiple of the number 3: 4 , 15 , 21 , 3 , 10 , 12 , 22

3 Underline each number of the following that is a multiple of the number 5: 23 , 15 , 40 , 51 , 5 , 8 , 20

4 Write all the multiples of the number 3 between 10 and 20.

5 Write all the multiples of the number 5 between 14 and 44.

6 Write all the multiples of the number 2 that are less than 10.

7 Write all the multiples of the number 3 that are less than 20.

8 Write all the multiples of the number 5 that are less than 30.

9 Complete.

$12 = 3 \times$ ...... hence the number 12 is a multiple of ...... and also considered a multiple of ......

$28 = 7 \times$ ...... hence the number 28 is a multiple of ...... and also considered a multiple of ......

$45 = 5 \times$ ...... hence the number 45 is a multiple of ...... and also considered a multiple of ......

10 Write the multiples of the two numbers 2 and 5 that are less than 50.

11 Write the multiples of the two numbers 2 and 3 that are less than 30.

12 Join each number to its multiples.

2 **3** **5**

7 , 8 , 11 , 12 , 15 , 21 , 30

13
- **a** Write a number greater than 20 that is a multiple of the two numbers 2 and 4 and also a multiple of their product 8.
- **b** Write a number greater than 20 that is a multiple of the two numbers 2 and 4 and not a multiple of their product 8.

14 Complete with the multiples of the number 10 as the example.

Example: 50 < 57 < 60

- **a** …… < 24 < ……
- **b** …… < 11 < ……
- **c** …… < 43 < ……
- **d** …… < 76 < ……
- **e** …… < 69 < ……
- **f** …… < 95 < ……

15 Complete with the multiples of the number 5 as the example.

Example: 20 < 23 < 25

- **a** …… < 17 < ……
- **b** …… < 8 < ……
- **c** …… < 32 < ……
- **d** …… < 66 < ……
- **e** …… < 81 < ……
- **f** …… < 94 < ……

16 If the number of pupils in a class is a multiple of the two numbers 2 and 3 that is included between 30 and 40. How many pupils are there in the class?

17 An alarm clock rings regularly every two hours, while another one rings every 3 hours. If the two alarms ring together at 12 o'clock, at what time will they ring together after that?

17 5 = …, then the number … is a multiple of the number 5

42 5 = …, then the number … is a multiple of the number 5

Lesson 2 Divisibility

First: The Meaning of Divisibility

Alaa and Yasmine baught a bag of sweets to distribute it equally among them. Complete.

- If the bag contains 5 pieces of sweets, then every one will take 2 pieces, and …… piece will be left.
- If the bag contains 6 pieces of sweets, then every one will take …… pieces, and nothing will be left in the bag.

i.e. When dividing 5 ÷ 2, the quotient is 2 and the remainder is 1
When dividing 6 ÷ 2, the quotient is 3 and the remainder is zero

It is said that: in the first case, the number 5 is not divisible by 2.
in the second case, the number 6 is divisible by 2.

Generally: The number that is divisibe by another, if the remainder of the division operation is zero.

Drill 1:

Complete.

a In dividing 7 ÷ 3, the quotient is …… and the remainder is ……, hence 7 is ………….. by 3.

b In dividing 20 ÷ 4, the quotient is …… and the remainder is ……, hence 20 is ………….. by 4.

Second: Multiples and divisibilty

We know that 35 is a multiple of the number 5, because if we multilpy 7 by 5 the product will be 35 (5 7 = 35). To express this meaning in another way that 35 is considered a multiple of the number 5 because if we divide 35 ÷ 5 the quotient will be a whole number 7 and the remainder will be zero. So, it is said that multiples of the number 5 are divisible by 5 and multiples of the number 7 are divisible by 7.

Generally: All multiples of a number are divisible by this number.

Drill 2:

Complete as in the example.

Example: 3 4 = 12, then 12 is a multiple of each of the two numbers 3 and 4 and 12 is divisible by each of 3 and 4.

a 7 9 = ……, then …… is the multiple of each of …… and …… and …… is divisible by each of …… and ……

b 5 11 = ……, then …… is the multiple of each of … and …… and …… is divisible by each of …… and ……

c 3 7 = ……, then …… is the multiple of each of …… and …… and …… is divisible by each of …… and ……

Drill 3:

Complete as in the example.

Example: 15 is not divisible by 2 because when we divide 15 ÷ 2, the remainder is 1, hence 15 is not a multiple of the number 2.

a 35 is not divisible by 3 because when we divide 35 ÷ ……, the remainder is ……, hence 35 is not a multiple of ……

b 28 is not divisible by 8 because when we divide …… ÷ 8, the remainder is ……, hence 28 is …………… of 8.

c 72 is …………… by 9 because when we divide …… ÷ ……, the remainder is ……, hence 72 is …………… of 9.

Generally:

1. A number is divisible by 2, if its units digit is 0 or any other even number.
2. A number is divisible by 5, if its units digit is 0 or 5.
3. A number is divisible by 3, if the sum of its digits is divisible by 3.

Exercise 2

1 Complete.

a 35 ÷ 6 = ……… and the remainder is ………

b A number is divisible by 2 if its units digit is ……………

c A number is divisible by 5 if its units digit is ……………

d 34 ÷ 3 = ……… and the remainder is ………, then 34 is …………… by 3.

2 Circle the numbers that are divisible by 2.

15 , 18 , 102 , 5224 , 6143

3 Circle the numbers that are divisible by 5.

125 , 3123 , 1460 , 2327 , 4265

4 Circle the numbers that are divisible by 3.

33 , 1256 , 73 410 , 1278

5 Write three numbers that are divisible by 2 and 5.

6 Write three numbers that are divisible by 3 and 5.

7 Write three numbers that are divisible by 2, 3 and 5.

Factors and Prime Numbers

Lesson 3

First: Factors of the Number

We know that we can write a number in the form of the product of two, or more, numbers.

- With respect to the number 6, we can write it as:
  6 = 1   6 or 6 = 2   3, then the numbers 1, 2, 3 and 6 are called the factors of the number 6.
- With respect to the number 35, we can write it as:
  35 = 1   35 or 35 = 5   7, then the numbers 1, 5, 7 and 35 are called the factors of the number 35.

Complete. With respect to the number 12, we can write it as:
12 = 1   ……, 12 = 2   …… or 12 = 3   ……, then the factors of the number 12 are …………………………

Note: The process of writing the number in the form of the product of two or more numbers is called **factorization** of the number into **factors**.

Drill 1:

Complete factorizing each of the following numbers into factors and write the factors of each.

a 18 = 1   … = 2   … = 3   …, then the factors of the number 18 are ………

b 42 = 1   …… = 2   …… = 3   …… = 6   ……, then the factors of the number 42 are ……………

c 24 = 1   …… = 2   …… = 3   …… = 4   ……, then the factors of the number 24 are ……………

d 120 = 1   …… = 2   …… = 3   …… = 4   …… = 5   …… = 10   ……, then the factors of the number 120 are ……………

Drill 2:

Find the factors of each of the numbers: 4 , 7 , 10 , 11 , 15 , 17.
Complete the solution.

a 4 = 1 … = 2 …, then the factors of the number 4 are ……

b 7 = 1 …, then the factors of the number 7 are ……

c 10 = 1 … = 2 …, then the factors of the number 10 are …

d 11 = 1 ……, then the factors of the number 11 are ………..

e 15 = 1 … = 3 …, then the factors of the number 15 are …

f 17 = 1 ……, then the factors of the number 17 are ………

From the above, the numbers 4, 10 and 15 have more than two factors while the numbers 7, 11 and 17 have only two factors (one and the number) and they are called **Prime numbers**.

Generally:
The number that has only two factors is called a prime number.

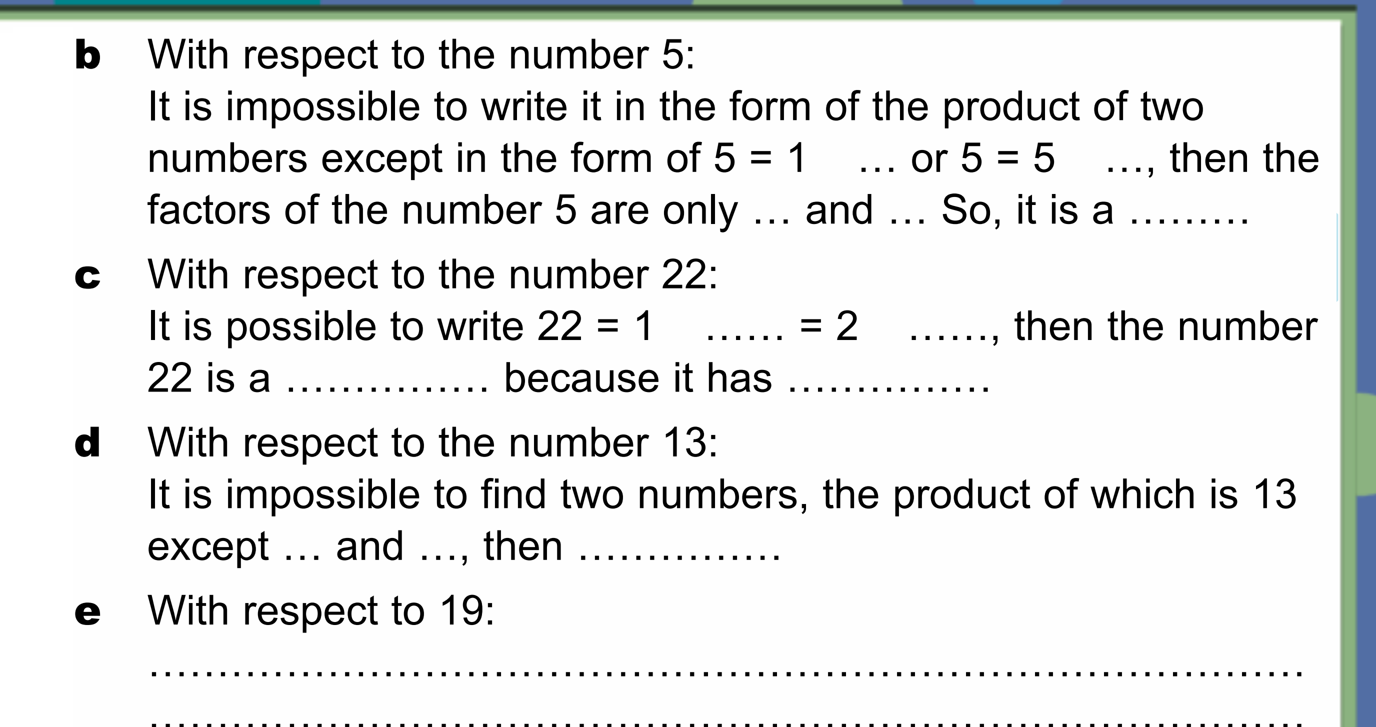
i.e. The prime number is divisible by itself and the whole one.

Note: The whole one is not a prime number.

Drill 3:

Discuss, which of the following numbers is considered a prime number and which is not: 27, 5, 22, 13 and 19 , then complete.

a With respect to 27:
It is possible to write 27 = 1 …… = 3 ……, then 27 has other factors than 1 and 27. So, it is not considered a ………



b With respect to the number 5:
It is impossible to write it in the form of the product of two numbers except in the form of 5 = 1 … or 5 = 5 …, then the factors of the number 5 are only … and … So, it is a ………

c With respect to the number 22:
It is possible to write 22 = 1 …… = 2 ……, then the number 22 is a …………… because it has ……………

d With respect to the number 13:
It is impossible to find two numbers, the product of which is 13 except … and …, then ……………

e With respect to 19:
……………………………………………………………………
……………………………………………………………………
……………………………………………………………………

Third: Factorizing the Number (non-prime) to its Prime Factors

We saw that factorizing a number to its prime factors, means writing this number in the form of a product of two or more numbers.

Example: Factorize the number 315 to its prime Factors .

Solution

we divide the number by the prime numbers 2,3,5,7,..... according to the divisibility of this number by these prime numbers .

315	3
105	3
35	5
7	7
1	

$315 = 3 \times 3 \times 5 \times 7$

Drill 4:

Factorize each of the following numbers to its prime factors.
15 , 12 , 9 , 26 and 36

Exercise 2

1 Find the factors of each of the following numbers.
14 , 38 , 26 , 75

2 Complete.

a A prime number has two factors that are …… and ……

b 16 = 1 …… = 2 …… = 4 ……, then the factors of the number 16 are …………………………

c 1 is not considered a prime number because ………………

d 3 is considered a factor of the numbers ……… and ………

3 State which of the following is a prime number.
2 , 7 , 25 , 29 , 34 , 57

4 Factorise each of the following numbers to its prime factors.
12 , 18 , 23 , 36

5 Find the number whose prime numbers are 2, 2 and 3.

6 Find the number whose prime numbers are 2, 5 and 7.

Common Factors for Two or more Numbers and Highest Common Factor (H.C.F.)

Lesson 4

Drill 1:

Complete.

Factors of the number 30 are 1 , 2 , 3 , 5 , 6 , 10 , … , …

Factors of the number 40 are 1 , 2 , 4 , 5 , 8 , 10 , … , …

Numbers that are factors of the number 30 and at the same time factors of the number 40 are 1 , …… , …… , ……

These numbers are called **common factors** for the two numbers.

The highest of these common factors is ……

So, it is said that 10 is the **highest common factor** for the two numbers 30 and 40 and is symbolized as **H.C.F.**

Generally:

The highest common factor (H.C.F.) for a set of numbers is the highest number that all the numbers are divisible by.

Example (1) : Find the H. C. F for the numbers 30 , 40

Solution

30	2
15	3
5	5
1	

40	2
20	2
10	2
5	5
1	

$30 = 2 \times 3 \times 5$

$40 = 2 \times \quad \times 5 \times 2 \times 2$

H.C.F. = $2 \times 5 = 10$

Drill 2: Find the H.C.F. for the numbers 9 , 12 and 15.

Complete the solution.

9 = 3 ……

12 = 3 …… ……

15 = 3 ……

H.C.F. for the numbers 9 , 12 and 15 = ………

Exercise 4

1 Find three common factors for 8 and 16.

2 Find three common factors for 12 and 28.

3 Facorize each of the two numbers 6 and 15 to their prime factors, then find the H.C.F. for them.

4 Complete the following table as the example.

	Division operation	Quotient	Remainder	Divisibility
Example	65 ÷ 4	16	1	65 is not divisible by 4
	57 ÷ 7			
	21 ÷ 3			
	75 ÷ 9			

5 **a** Find all the factors for each of the numbers 16 and 20.
b Find the common factors for the numbers 16 and 20.
c Find the H.C.F. for the numbers 16 and 20.

6 Find the H.C.F. for each of the following sets of numbers.
a 20 and 30
b 35 and 49
c 12 and 16
d 24, 40 and 56
e 15, 18 and 21
f 6, 7 and 8

7 If the H.C.F. for two numbers is 7, then what are the two numbers? Give three possible answers.

Common Multiples for Two or more Numbers and Lowest Common Multiples (L.C.M.)

Lesson 5

We know that each of the numbers 6, 12, 18, … is a **multiple** for both numbers 2 and 3. So, it is said that each of these numbers is a **common multiple** for the numbers 2 and 3.
Similarly, the number 15 is a multiple for both numbers 3 and 5. So, it is a common multiple for the numbers 3 and 5. Also 30, 45, 60, … are common multiples for the numbers 3 and 5.

Drill 1:

a Complete till you reach the number 70.
The multiples of the number 5 (up to 70) are 0, 5, …………, 70
The multiples of the number 7 (up to 70) are 0, 7, …………, 70

b Underline the common multiples for the numbers 5 and 7.

c Are all these common multiples also multiples for the product of 5   7 (i.e. multiples for the number 35)?

Drill 2:

a Complete till you reach the number 24.
The multiples of the number 2 (up to 24) are 0, 2, …………, 24
The multiples of the number 4 (up to 24) are 0, 4, …………, 24

b Underline the common multiples for the numbers 2 and 4.

c Are all these common multiples also multiples for the product of 2   4 (i.e. multiples for the number 8)?

Drill 3:

a Complete till you reach the number 60.
The multiples of the number 2 (up to 60) are 0, 2, ……………
The multiples of the number 3 (up to 60) are 0, 3, ……………
The multiples of the number 5 (up to 60) are 0, 5, ……………

b Underline the common multiples for the numbers 2, 3 and 5.

c What is the smallest common multiple (other than zero) for the numbers 2, 3 and 5? (This number is called the lowest common multiple for the numbers 2, 3 and 5)

The lowest common multiple for a set of numbers is the smallest number (other than zero) that is divisible by each of these numbers, then it is a multiple for each of these numbers individually and is abbriviated as L.C.M.

Example: Find the L.C.M. for 4 , 12 and 15.

Complete the solution.

Multiples for the number 4 are 0, 4, 8, ………………………………

Multiples for the number 12 are 0, 12, ………………………………

Multiples for the number 15 are 0, 15, ………………………………

The lowest common multiple for the numbers 4 , 12 and 15 (other than zero) is ……

Then, the L.C.M. for the numbers 4 , 12 and 15 is ………

Another solution using factorization to the prime factors.

4	=	2	2		
12	=	2	2	3	
15	=			3	5

L.C.M. → 2 2 3 5 = 60

Then, L.C.M. for the numbers 4 , 12 and 15 is 60.

Exercise 5

1 Write three multiples for the number 7.

2 Write three common multiples for the numbers 6 and 10.

3 Write three common multiples for the numbers 2, 7 and 10.

4 Find all the common multiples between 50 and 100 for the numbers:

a 3 and 5 **b** 4 and 6 **c** 2, 7 and 8

5
a Write the multiples for the number 3 up to 63.
b Write the multiples for the number 7 up to 63.
c Write all the common multiples for the numbers 3 and 7 up to 63.
d Write the L.C.M. for the numbers 3 and 7.

6
a Write the multiples for the number 2 up to 60.
b Write the multiples for the number 3 up to 30.
c Write the multiples for the number 5 up to 30.
d Write all the common multiples for the numbers 2, 3 and 5 up to 30.
e Write the L.C.M. for the numbers 2, 3 and 5.

7 **a** Factorize each of the numbers 8 and 18 to its prime factors.
b Find the L.C.M. for the numbers 8 and 18.

8 Find the L.C.M. for each of the following sets of numbers.
a 2, 3 and 4 **b** 3, 4 and 5 **c** 2, 6 and 7 **d** 3, 6 and 7

9 If you know that the lowest common multiple for two numbers is 24, what are the two numbers (give more than one answer).

10 Find the L.C.M. for the numbers (5 7 13) and (2 5 11).

11 Find the L.C.M. for the numbers (2 3 5 7) and (3 3 7).

Unit 3 Activities

Activity 1

Find: **a** the common multiple of all numbers.

b the common factor of all numbers.

Activity 2

First: Complete the following table.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10							
3	6	9	12								
4	8	12									
5	10										
6											
7											
8											
9											
10											
11											
12											

Second: Using the table above, complete the following.

a The number 108 is divisible by …… and ……

b The number …… is divisible by 11 and 12.

c The number 54 is considered a common multiple for the two numbers …… and ……

d Multiples of the number 12 that are less than 150 are ………

e The number 11 is considered one of the factors of the numbers ……………

General Exercises on Unit 3

1 Join each number from group **a** with the suitable phrase from group **b**.

a 15 24 28 39

b divisible by 7 | divisible by 3 | divisible by 13 | divisible by 5

2 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a The number 63 is divisible by 6. (   )
b The number 17 is a prime number. (   )
c 0 and 7 are multiples of the number 7. (   )
d The H.C.F. for the two numbers 8 and 24 is 4. (   )
e The L.C.M. for the two numbers 8 and 24 is 8. (   )

3 Complete.

a The multiples of the number 6 which are between 20 and 40 are ....
b The factors of the number 35 are ....

4 Find:

a the H.C.F. for the numbers 24 and 36.
b the L.C.M. for the numbers 7 and 9.



Unit Four

Measurement

- The Length
- The Area
- Unit 4 Activities
- General Exercises on Unit 4

Lesson 1 The Length

You know that the centimetre (cm) and metre (m) are units used for measuring length.

The metre (m) = 100 centimetres (cm)

Drill 1:

Complete.

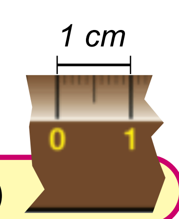
a The metre …… the centimetre (< , > or =)

b 3 metres = …… centimetres

c 4 metres = …… centimetres

d …… metres = 700 centimetres

e …… metres = 300 centimetres



The centimetre (cm) = 10 millimetres (mm)

Drill 2:

complete.

a 3 centimetres = …… mm

b 2 cm = …… mm

c …… cm = 40 mm

d …… cm = 60 mm

e …… m = 400 cm = …… mm

f Arrange the units of length ascendingly (cm , m , mm)

…… , …… , ……

Drill 3:

Choose the suitable unit to measure each of the following.

a Thickness of an electric wire. (mm , cm , m)

b Length of the classroom. (mm , cm , m)

c Length of the playground. (mm , cm , m)

d The height of a lamppost. (mm , cm , m)

Drill 4:



The decimetre (dm) = 10 centimetres (cm)

Complete the following.

a 5 dm = …… cm

b 4 dm = …… cm

c 3 dm = …… cm = …… mm

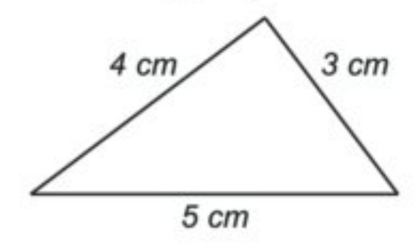
d … dm = 70 cm = …… mm

e … dm = …… cm = 600 mm

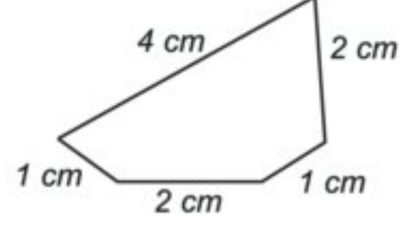
f … dm = … cm = 200 mm

Drill 5:

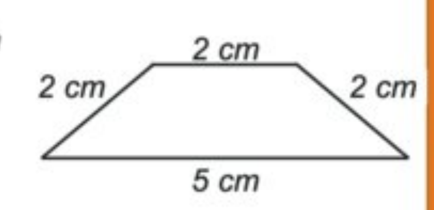
You know that, the perimeter of a polygon equals the sum of its side lengths, notice the following figures then complete.



Perimeter of the triangle = …… cm



Perimeter of the polygon = …… cm



Perimeter of the polygon = …… cm

Drill 6:

Notice the following figures, then complete (consider the unit of length = 1 cm).

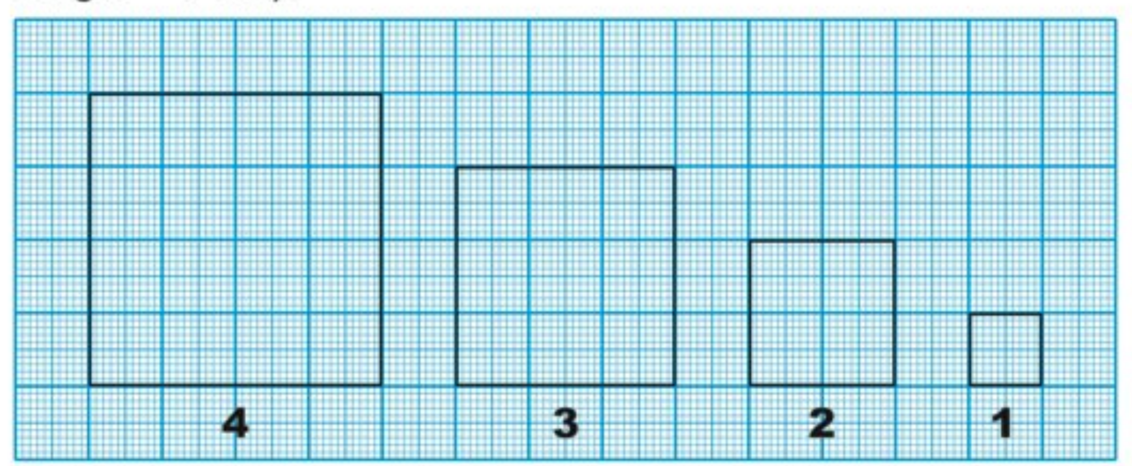


Figure number	Figure name	Side length	Sum of side lengths (Perimeter)
1	Square	1 cm	1 + 1 + 1 + 1 = 1 4 = 4 cm
2	…………	… cm	… + … + … + … = … … = … cm
3	…………	… cm	… + … + … + … = … … = … cm
4	…………	… cm	… + … + … + … = … … = … cm

From the previous we deduce that:

perimeter of a square = side length   ……

Drill 7:

Use the relation between the perimeter of the square and its side length to complete.

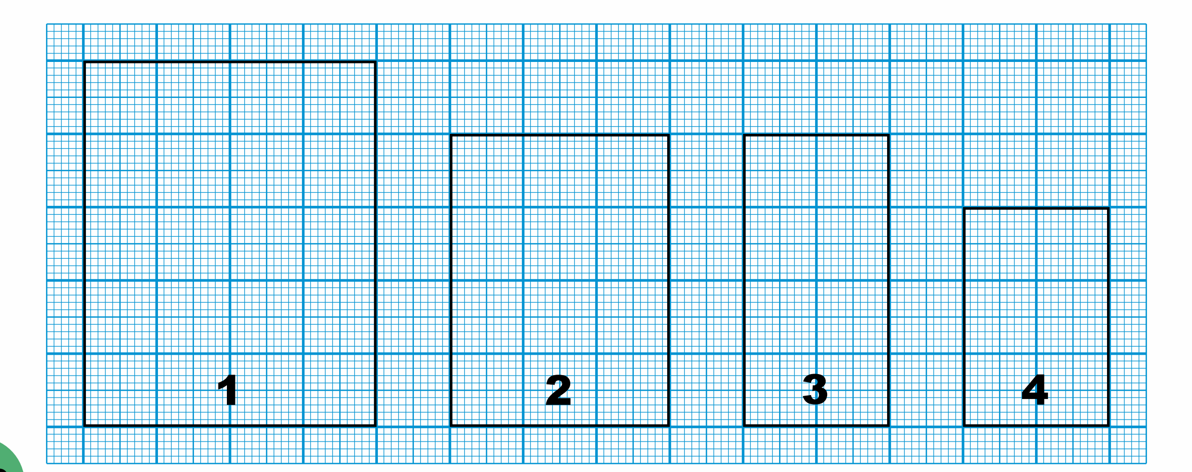
a Perimeter of a square of side length 9 cm = …   … = …… cm

b Perimeter of a square-shaped piece of land of side length 10 m = …………… = ………

c Perimeter of a square-shaped piece of paper of side length 2 dm = …………… = …… dm = …… cm

Drill 8:

Notice the following rectangles, then complete (consider the unit of length = 1 cm).



Rectangle number	Length	Width	Sum of side lengths (Perimeter)
1	5	4	5 + 5 + 4 + 4 = 5 2 + 4 2 = (5 + 4) 2 =18 cm
2	4	…………	4 + 4 + … + … = 4 2 + … 2 = (4 + …) 2 =… cm
3	…………	2	… + … + 2 + 2 = … 2 + 2 2 = (… + 2) 2 =… cm
4	…………	…………	… + … + … + … = … 2 + … 2 = (… + …) 2 =… cm

From the previous we deduce that:

The perimeter of a rectangle = (……… + width)   ……

Drill 9:

Complete.

a The perimeter of a rectangle whose length is 7 cm and width 3 cm = (…… + ……)   …… = …… cm

b The perimeter of a rectangle whose dimensions 6 m and 3 m = (…… + ……)   …… = …… metre

Example: Calculate the perimeter of a rectangle of dimensions 3 dm and 50 cm.

Solution: 3 dm = 30 cm, then the perimeter of the rectangle equals (30 + ……)   …… = …… cm

Note: To calculate the perimeter of a figure whose dimensions are in different units, you have to make the dimensions in the same unit.

Drill 10:

The kilometre (km) = 1000 meters (m)

Complete. **a** 3 km = …… m   **b** 9000 m = …… km

c 8 km = …… m = …… dm   **d** 4 km = …… m = …… cm

Drill 11:

A rectangular-shaped piece of land with dimensions 3 km and 2 km, it is needed to be surrounded by a wire fence. The cost of one metre of wire fence equals 8 pounds what is the total cost of the fence?

Solution:

Perimeter of land = (… + …)   2 = …… km = …… m

Cost of fence = ……   …… = …… pounds

Exercise 1

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a The perimeter of the square = side length + 4. ( )

b The perimeter of a rectangle = (length + width) + 2. ( )

c The decimetre > the metre. ( )

d The millimetre < the centimetre. ( )

e If the dimensions of a rectangle are 3 cm and 5 cm, then half its perimeter equals 8 cm. ( )

2 Arrange the units of length in ascending order.

centimetre , decimetre , millimetre , kilometre , metre

3 Choose the suitable unit to measure each of the following.

a The distance between Cairo and Alexandria. (mm, dm, km)

b The height of a building. (mm, dm, m)

c The height of a man. (km, cm, mm)

d The length of an ant. (km, mm, m)

4 Choose the closest answer.

a The length of a taxi = ……… (2 km, 20 m, 200 cm)

b The length of my pen = ……… ($\frac{1}{2}$ km, 15 dm, 15 cm)

c The height of my brother = ……… (3 m, 160 cm, 160 mm)

d My mother bought a piece of cloth of length = ………
(3 km, 3 m, 3 cm, 3 mm)

e In my house, there is a squared room of side length = ……
(5 m, 5 cm, 5 mm, 5 km)

5 Calculate the perimeter of each of the following.

a A square of side length 3 dm.

b A rectangle whose length is 12 cm and width 5 cm.

c A rectangle whose length is 3 dm and width 25 cm.

d A rectangle whose dimensions are 2 m and 150 cm.

6 Calculate, in centimetres, the side length of a square whose perimeter is 4 dm.

7 The perimeter of a rectangle is 86 cm, and its length is 23 cm. Find its width: **a** in centimetres. **b** indecimetres.

8 The sum of the perimeters of two squares is 100 dm. If the side length of one of them is 8 dm, find the side length of the other square.

a in decimetres **b** in centimetres

9 It is wanted to make a frame to a rectangle-shaped picture whose dimensions are 400 cm and 500 cm. If the cost of one metre of the frame is 3 pounds, what is the cost of the frame?

10 The width of a rectangle-shaped piece of land equals $\frac{1}{3}$ of its length. Calculate its perimeter if its width equals 15 metres.

11 Calculate the perimeter of each of the following.

a A rectangle-shaped room whose dimensions are 4 m and 3 m.

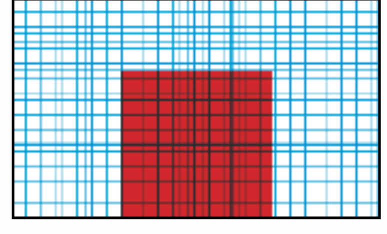
b A rectangle-shaped picture frame whose dimensions are 5 dm and 20 cm.

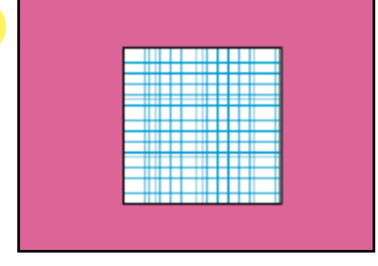
c A rectangle-shaped bed sheet whose dimensions are 2 m and 150 cm.

d A rectangle-shaped room door whose length is 18 dm, and width 1 metre.

e A square-shaped window of side length 15 dm.

12 Notice the drawn figure, imagine that you cut the red part, calculate the perimeter of the remaining part (consider that the side length of the small square is 1m).



13 

The figure represents a rectangular piece of land, its dimensions are 70 m and 50 m and a squared playground, its side is 30 m long is constructed inside it. If the shaded part is surrounded by a wire from inside and outside, find the length of the wire in each case.

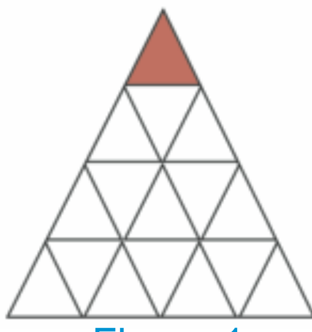
Lesson 2 The Area

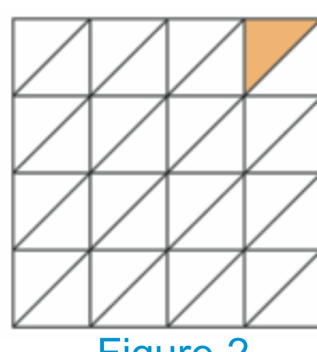
Preface

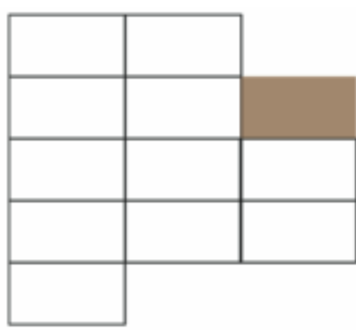
Areas of the figures like squares, rectangles, triangles, … etc, are measured by units of area, In this lesson, you will know some of these units.

Drill 1:

Notice the following figures, each figure is divided into equal parts, **units of area**.


Figure 1


Figure 2


Figure 3

Complete the following table:

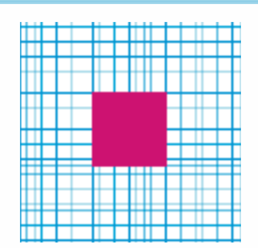
Figure number	Number of equal parts (area of figure)
1	……………… ▲
2	………………
3	……………… ■

Question Can you determine, which of the previous figures is greater in area? why?

To compare the areas of some figures, you have to calculate the area of each using the same unit. So, we are in need of standard units, One of these units is the **square centimetre** and its symbol is **cm^2**. Then, what is the square centimetre?

Drill 2:

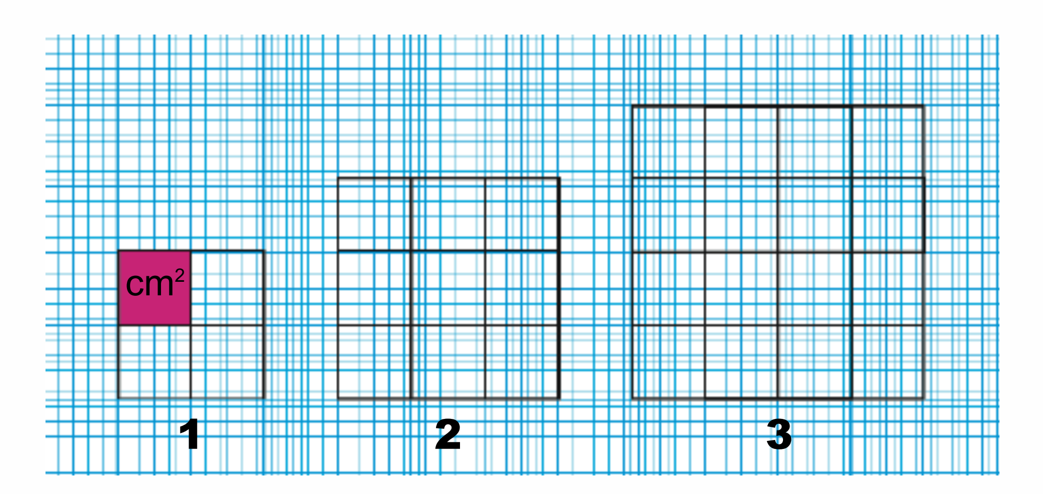
Notice the shaded figure opposite to recognize the square centimetre **cm^2**, then complete.



cm^2 is the area of a square of side length ……

Drill 3:

Notice the following squares and count the square centimetres which form each square (number of small squares), then complete as the example.



	Square number	Number of small squares (cm^2)	Side length of square	Notes
Example	**1**	4 cm^2	2 cm	4 = 2 2
	2			
	3			

Given that the area of the square = Number of the small squares (cm^2), then complete:

a Area of square **1** = 4 cm^2 = 2 cm   2 cm

b Area of square **2** = … cm^2 = … cm   … cm

c Area of square **3** = ……… = … cm   … cm

From the previous, we deduce that:

Area of the square = side length   ……

Drill 4:

Using the previous relations, complete.

a Area of square of side length 9 cm = ... = ... cm²

b Area of square of side length 2 cm = ... = ...

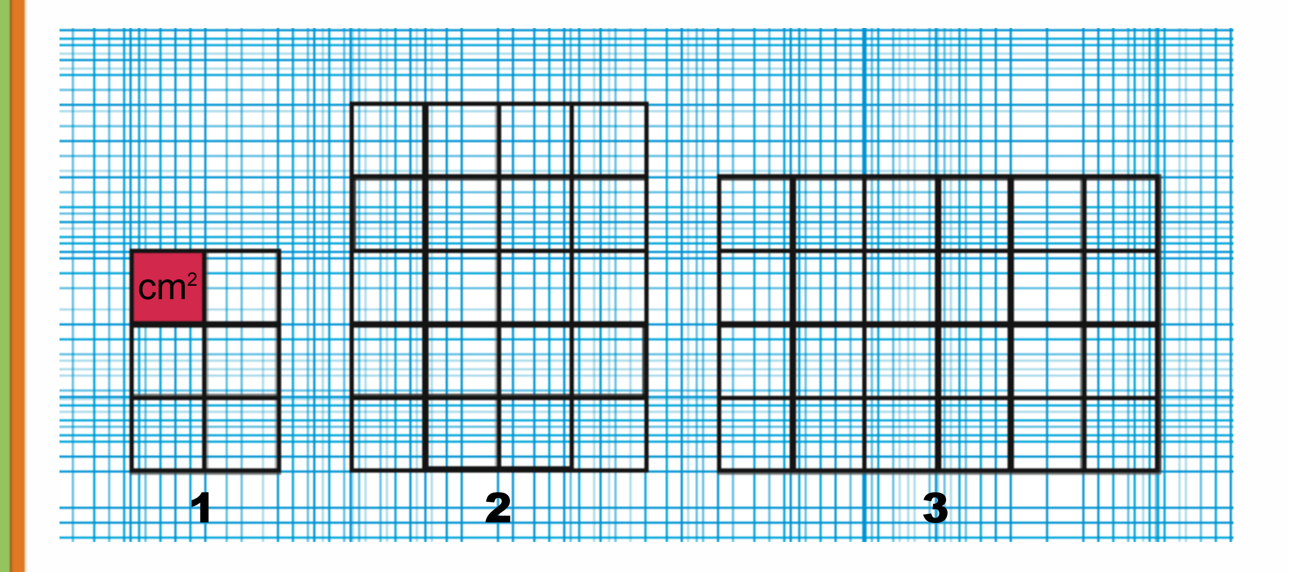
c Perimeter of a square is 24 cm

Side length of the square = ... ÷ 4 = ... cm (Why?)

Area of the square = ... = ...

Drill 5:

Notice the following rectangles and calculate the number of square centimetres (small squares) in each figure, then complete.



	Rectangle number	Number of square centimetres (area)	Rectangle length	Rectangle width	length × width
Example	1	6 cm²	3 cm	2 cm	3 cm × 2 cm = 6 cm²
	2	......	......	......	.... = ...
	3	......	......	......	.... = ...

From the previous, we deduce that:

Area of the rectangle = ...

Drill 6:

Use the previous relation between the area of the rectangle and its dimensions, then complete.

a Area of rectangle whose length is 9 cm and width 6 cm equals …… cm   …… cm = …… cm^2.

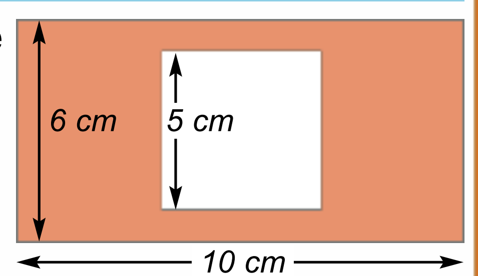
b Area of rectangle whose dimensions are 3 cm and 8 cm equals ……   …… = ……………

c The perimeter of a rectangle is 18 cm and its width 3 cm
length + width = $\frac{1}{2}$ perimeter = …… cm
We know that width = 3 cm, then length = … – … = …… cm
Then, area of rectangle = ……   …… = ……………

d The length of a rectangle is 12 cm, which is twice its width.
width of rectangle = $\frac{1}{2}$ length = …… cm
Then, area of the rectangle = ……   …… = …… cm

Drill 7:

The figure opposite represents a rectangle whose dimensions are 10 cm and 6 cm with a square of side length 5 cm inside it. Calculate:



1 the area of the shaded part.

2 the perimeter of the shaded part.

Drill 8:

We knew that the square centimetre (cm^2) is the area of a square of side length 1 cm. Use the same pattern to write mathematical statements to show the meaning of the following units of area.

a the square metre (m^2) is the area of a square of side length ………   (m^2 = 1 m   1 m)

b The square kilometre (km^2) is the area of …… whose side length ……   (km^2 = ………   ………)

c The square decimetre (dm^2) is ……   (dm^2 = ………   ………)

Drill 9:

Use the relations you got in the previous drill, and complete.

a m^2 = 1 m 1 m = 100 cm 100 cm = 10 000 cm^2

b km^2 = …… km …… km = …… m …… m = …… m^2

c dm^2 = …… dm …… dm = …… cm …… cm = …… cm^2

From the previous, we deduce that:

The square decimetre = 100 cm^2
The square metre = 100 dm^2 = 10 000 cm^2
the square kilometre = 1 000 000 m^2

Drill 10:

Choose the suitable unit to measure each of the following.

a Area of the floor of the room. (km^2 , dm^2 , cm^2 , m^2)

b Area of the agricultural land in Egypt. (km^2 , dm^2 , cm^2 , m^2)

c Area of the surface of a book page. (km^2 , cm^2 , m^2)

d Area of the playground of your school. (km^2 , cm^2 , m^2 , dm^2)

e Area of the eastern desert. (km^2 , cm^2 , dm^2)

Drill 11:

Choose the closest answer.

a Area of the flat which I live in is ……
(75 km^2 , 75 cm^2 , 75 m^2 , 75 dm^2)

b Area of the classroom in our school is ……
(24 m^2 , 24 cm^2 , 24 km^2)

c A pupil in Primary 4 used his geometric instruments to draw a rectangle whose area is ……
(12 m^2 , 12 dm^2 , 12 cm^2)

d Area of the tile used in tilling our house is ……
(25 dm^2 , 25 cm^2 , 25 m^2)

Exercise 2

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a The square metre (m^2) is a unit of measurement used to measure the perimeters of figures. ( )

b The decimeter (dm) is a unit of measurement used to measure the areas of the figures. ( )

c The millimetres (mm) is a unit of measurement used to measure the lengths of the things. ( )

d Area of square = side length 4 ( )

e Area of rectangle whose length is 2 dm and width 5 cm is 100 cm^2. ( )

f Area of a square-shaped piece of land of side length 3 km is 9 million m^2. ( )

2 Complete.

a 3 cm = …… mm

b 5 dm = …… cm

c 2 km = …… m

d 2 m = …… cm

e 50 mm = …… cm

f 850 cm = …… dm

g 4 200 mm = …… dm

h 8 000 cm = …… m

i 6 000 m = …… km

j 3 km = …… m

3 Complete.

a 3 m^2 = …… dm^2

b 7 m^2 = …… cm^2

c $\frac{1}{2}$ km^2 = …… m^2

d 27 m^2 = ... dm^2

e 90 000 cm^2 = …… m^2

f 6 000 000 m^2 = …… km^2

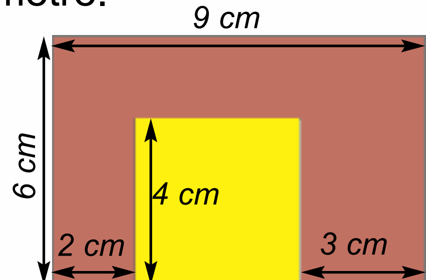
4 Complete using a suitable sign <, >, or = in each ☐.

a 3 km ☐ 300 m   **b** 8 dm ☐ 80 cm

c 5 000 mm ☐ 5 metres   **d** 7 km ☐ 75 000 cm

e Area of square of side length 8 cm ☐ Area of rectangle whose dimensions are 9 cm and 8 cm.

f Area of rectangle whose dimensions are 3 dm and 7 cm ☐ Area of square of side length half a metre.



5 The figure opposite is a rectangle whose dimensions are 9 cm and 6 cm. A square of side length 4 cm is cut from it. Calculate:

a the area of the remaining part by two different methods.

b the perimeter of the remaining part.

6 The length of a rectangle is 20 cm its width. If its perimeter is 64 cm, find its area in cm^2.

7 The perimeter of a square is 28 cm, find its area.

8 If the sum of the perimeters of two squares is 48 cm, and the side length of one of them is 7 cm. Find:

a the side length of the second square.

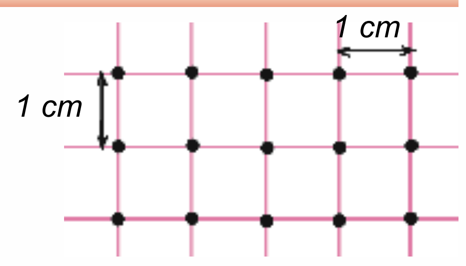
b the sum of their areas.

9 A rectangle-shaped hall whose dimensions are 8 m and 6 m. How many tiles are needed to tile this hall, given that the side length of the required square-shaped tiles is 20 cm?

Unit 4 Activities

Activity 1

In the figure opposite, 15 dots are arranged in the form of a lattice such that the horizontal and vertical distances between every two adjacent dots, vertically or horizontally, are equal.



Consider that the distance between every two adjacent points is 1 cm, then answer the following questions.

a How many squares can be drawn such that the vertices of each coinside with these dots, and its area equals:

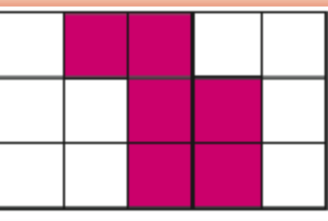
i 1 cm^2 **ii** 2 cm^2 **iii** 4 cm^2

b How many rectangles can be drawn such that the vertices of each coinside with these dots, and its perimeter equals:

i 6 cm **ii** 8 cm **iii** 10 cm

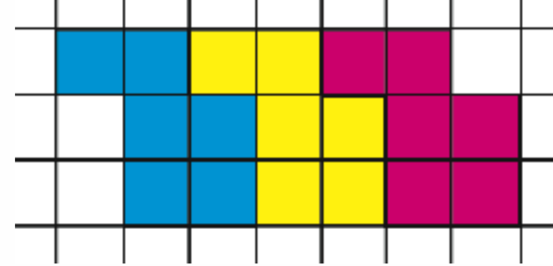
Activity 2

Notice and deduce.



a Find the area of the coloured part and also its perimeter (consider that the side length of the small square is 1 cm).

b If the previous figure is drawn three times, you will get the figure below. What is the area of this new figure? What is its perimeter?



c If you imagine that we drew the original figure 20 times using the same previous way (on a large paper), what is the area of the resulted figure? What is its perimeter?

General Exercises on Unit 4

1 Complete using a suitable sign <, >, or = in each □.

a 6 metres □ 650 cm **b** 10 dm □ 1 metre

c $\frac{1}{2}$ km^2 □ 25 000 m^2 **d** 81dm^2 □ 6 400 cm^2

2 Choose the suitable unit of measurement for each of the following life situations.

a Measuring the heights of the pupils.
(square centimetre , millimetre , centimetre , kilometre)

b Calculating areas of the walls in a house.
(m , cm^2 , km^2 , m^2)

c Calculating the perimeter of a piece of land allocated for building a new city in facing the problem of over-population.
(m , km^2 , km , cm^2)

d Calculating the distance between the earth and the moon.
(cm , m , km , km^2)

3 Complete.

a The condition of congruency of two squares is ……

b Area of rectangle = ………………………… and perimeter of square = …………………………

c If the dimensions of a rectangle are 8 cm and 5 cm, then its area = …………………………

d If the perimeter of a square = 24 cm, then its area = ………

4 The dimensions of a rectangle are 90 cm and 40 cm. If the area of the rectangle equals the area of a square find the perimeter of the square in decimeters.

General Exercises

Exercise 1

1 Find the result of the following.

a 587 692 + 401 203 = ...

b 9 806 735 – 8 805 524 = ...

c
$$\begin{array}{r} 35\,867 \\ +\quad 8\,954 \\ \hline \ldots\ldots\ldots\ldots \end{array}$$

d
$$\begin{array}{r} 9\,000\,000 \\ -\quad 278\,456 \\ \hline \ldots\ldots\ldots\ldots\ldots \end{array}$$

2 Complete using a suitable sign $<$, $>$, or $=$ in each ☐ .

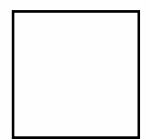
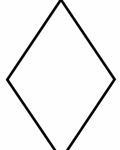
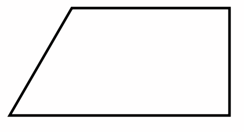
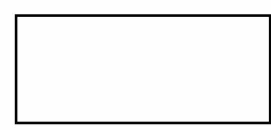
a 3×15 ☐ $90 \div 2$ **b** 4×13 ☐ 3×17

c Measure of the acute angle ☐ Measure of the right angle.

d Measure of the straight angle ☐ Measure of the obtuse angle.

e Area of the rectangle whose dimensions are 4 cm and 15 cm ☐ Area of the square of side length 8 cm.

3 **a** Join each figure to the suitable name.

Rhombus **Trapezium** **Parallelogram** **Rectangle** **Square**

b Find the H.C.F. and L.C.M. for the numbers 6 and 8.

4 Draw the triangle ABC in which BC = 4 cm, $m(\angle B) = 70^\circ$ and $m(\angle C) = 50^\circ$, then answer.

a Without using the protractor, calculate $m(\angle A)$.

b What is the type of ΔABC with respect to the measures of its angles.

5 Hesham has LE 20 000, he bought a bedroom suite for LE 8 750 and a reception suite for LE 6 250. Find the remainder.

Exercise 2

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a 549 467 + one hundred thousand = 559 467 ( )

b 8 256 344 – three thousand = 8 256 044 ( )

c 906 ÷ 3 = 302 ( )

d 65 × 8 = 800 ( )

e The sum of measures of angles of a triangle = 180°( )

f The L.C.M. for the two numbers 12 and 30 is 60. ( )

2 Complete using a suitable sign <, >, or = in each ☐.

a 4 × 16 ☐ 100 ÷ 2

b 3 milliard ☐ 965 752 812

c Area of the square of side length 3 dm ☐ Area of the rectangle whose dimensions are 90 cm and 10 cm.

d Perimeter of a square of side length 5 cm ☐ Perimeter of an equilateral triangle of side length 7 cm.

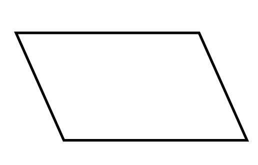
e Measure of the straight angle ☐ Sum of the measures of the angles of a triangle.

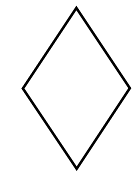
3 Find: **a** the L.C.M. for the two numbers 6 and 8.

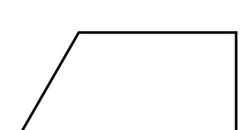
b the H.C.F. for the two numbers 45 and 60.

4 Draw the triangle ABC, right-angled at B where BC = 8 cm and AB = 6 cm. Determine the mid-point M of $\overline{AC}$.

5 Join each figure to the suitable name.







Rhombus Parallelogram Trapezium

Exercise 3

1 Complete.

a 65 348 475 – three hundred thousand = ...

b The value of the digit 4 in the number 546 789 = ...

c The L.C.M. for the numbers 4 and 8 is ....

d The H.C.F. for the numbers 6 and 30 is ....

e The side length of a square whose perimeter is 36 cm = ...

2 Complete using a suitable sign <, >, or = in each ☐ .

a 3 407 805 + 92 716 ☐ 3 500 521 – 1

b 256   4 ☐ 256   5

c 9 600 ÷ 5 ☐ 9 600 ÷ 4

d Perimeter of a square of side length 2 m ☐ Perimeter of a rectangle whose dimensions are 24 dm and 16 dm.

3 Draw the rectangle ABCD in which BC = 4 cm and AB = 3 cm. Draw $\overline{AC}$ and $\overline{BD}$ where M is their point of intersection.

4 Factorize each of the two numbers 24 and 30 to its prime factors, then find:

a the L.C.M. for 24 and 30.

b the H.C.F. for 24 and 30.

Exercise 4

1 Complete.

a 3 287 500 + 713 250 – 3 000 750 = ...

b If 13 × 45 = 585, then
585 ÷ 45 = ... and 587 = 45 × ...... + ...

c The value of the digit 3 in the number 3 721 014 is ......

d 4 × 765 × 25 = ...

e (25 × 8) – 150 = ...

2 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a If ABC is a triangle in which m(∠A) = 70° and m(∠B) = 20°, then it is an acute-angled triangle. (   )

b The square is a quadrilateral in which all angles are right and all sides are equal in length. (   )

c The rectangle is a quadrilateral in which all angles are right. (   )

d In a parallelogram, every two opposite sides are not parallel. (   )

3 Complete:

a The number 105 is divisible by ... and also divisible by...

b The H.C.F. of 16 and 24 = ...

c The L.C.M. of 14 and 10 = ...

d The factors of 45 are ......

e $\frac{1}{4}$ a day = ... hours

Exercise 5

1 Choose the correct answer.

a 7 251 309 + 748 691 = ……
(8 milliard , 8 million , 8 thousand)

b 5 000 000 – 324 067 = ……
(95 324 076 , 91 675 933 , 4 675 933)

c $8 \times 641 \times 125$ = ...
(641 thousand , 641 hundred , 641 million)

d The number 2 100 is divisible by …… (35 , 11 , 13 , 17)

e XYZ is a triangle in which $m(\angle X) = 40°$ and $m(\angle Y) = 30°$, then ΔXYZ is …… triangle.
(a right-angled , an obtuse-angled , an acute-angled)

f The L.C.M. of 15 and 35 is …… (15 , 105 , 35 , 5)

2 Draw the square XYZL whose side length 3 cm. Join its diagonals $\overline{XZ}$ and $\overline{YL}$.

3
a Multiples of 6 are ……, …… and ……
b Prime factors of 350 are ……, …… and ……
c The perimeter of a rectangle whose dimensions are 7 cm and 11 cm = ………………………… = …… cm
d The H.C.F. of 18 and 30 is ……
e $\frac{1}{4}$ of a day = …… hours = …… minutes.

4
a Calculate 2 106 425 + 894 075 – 3 000 500.
b Find the number that if subtracted from 256 412 307, then the remainder will be 255 million.

General revision on the Mathematics syllabus for Fourth form Primary - for the first term

1 *Complete each of the following :*

1. The Smallest 7-digit number is ....
2. The Smallest different 6-digit number is ....
3. The greatest 7-digit number is ....
4. The greatest 5-digit number is ....
5. The million is the smallest number formed from .... digits.
6. Without repeating digits , the greatest number formed from the digits : 0 , 3 , 2 , 5 , 1 , 6 is ....
7. Ten million is the smallest number formed from .... digits.
8. 49 × 830 = ...

In the Exercises (9 → 15) , the place value of the digit

9. 6 in the number 2641 ....
10. 4 in the number 54678 ....
11. 2 in the number 762618 ....
12. 8 in the number 73985241 ....
13. 7 in the number 54365724 ....
14. 5 in the number 135649728 ....
15. 3 in the number 2834571 ....
16. Rewrite the following numbers using the digits :
    (a) 2 million , 37 thousand , 9
    (b) 24 million , 35 thousand , 47
    (c) 4 million , 7 thousand , 706
    (d) 5 million , one thousand
    (e) 4 million , five hundred and thirty eight.
    (f) 45 million , 30 thousand , 99
    (g) 32 million , 8 thousand , 15
    (h) 6 million , 727 thousand , 704
    (j) 71 million , 354 thousand , 12
17. 350 tens = ... hundreds.
18. 15 0000 = ... hundreds.
19. 3092000 = ... million , ... thousand.
20. 342 million = ... thousand.
21. 240 thousand = ... hundreds = ...
22. L.C.M of the numbers 36 , 24 and 12 is ....

23. H.C.F of the numbers 35 , 42 and 28 is ....

24. The greatest number formed from the digits 5 , 8 , 4 , and 9 is ....

25. The place value of the digit 3 in the number 8 376 542 is ....

26. The prime numbers that are included between 2 , 30 is ....

27. The prime numbers that lie between 6 and 10 is ....

28. The number whose prime factors are 2 , 3 and 5 is ....

29. From the numbers 865 , 570 , 552 , 175 , 577 , 546

    Complete the following :

    (a) Numbers that are divisible by 2 are ....

    (b) Numbers that are divisible 5 are ....

    (c) Numbers that are divisible by 10 are ....

2 ***Choose the correct answer :***

1. The million is the smallest number formed from .... digits.
   a. 3 b. 7 c. 4
2. The digit which represents million in the number 46835714 is ....
   a. 6 b. 8 c. 3
3. $50 \times 40 =$ .... hundreds.
   a. 2 b. 200 c. 2000
4. $805 \times 100 =$ .... $\times 10$
   a. 85 b. 8050 c. 250
5. 280 tens .... 28 hundreds.
   a. > b. < c. =
6. The value of the digit 8 in the number 587627 is ....
   a. 80 000 b. 800 000 c. 8000
7. 150 thousands = ...
   a. 150 tens b. 15 thousands c. 1500 hundreds
8. Three millions , three thousands and three is ....
   a. 300 3003 b. 30 300 c. 3030
9. The value of the digit 7 in the number 40735126 is ....
   a. 7 million b. 70 thousand c. 700 thousand
10. 71 million , 354 thousand and 12
    a. 71354120 b. 7135412 c. 71354012
11. 365274 359876
    a. > b. < c. =
12. 30×40 .... 20×60
    a. < b. > c. =
13. $6934 + 3359 =$ ....

a. 12093 b. 10293 c. 20193

14. 5 million ………… 500 000

a. $<$ b. $>$ c. $=$

15. The value of the digit 8 in the number 1096835 is …………

a. 8 b. 800 c. 8000

16. ………… is one of the factors of the number 8

a. 16 b. 4 c. 20

17. $70 \times 20 = 14 \times$ …………

a. 10 b. 100 c. 1000

18. 40×500 ………… 20×10

a. $>$ b. $=$ c. $<$

19. The numbers 1 ، 5 ، 7 are …………

a. even b. odd c. prime

20. 54 is a number that is divisible by …………

a. 4 b. 6 c. 7

21. The number ………… is divisible by 5

a. 495 b. 594 c. 54

3 ***Find the result of each of the following :***

a. 879156 + 498068 = …………

b. 608467 - 129585 = …………

c. 2525 ÷ 25 = …………

d. 4803 × 67 = …………

e. 471564 + 126469 = …………

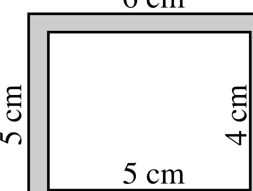
f. 738594 – 153037 = …………

4 ***Solve the following problems :***

1. Factorize the number 120 to its prime factors.
2. Underline the numbers that are divisible by 2 and 3 ، 1926 – 3431 – 3330 – 2112 – 1064
3. In a certain year the profit of one factory was L.E. 7316 ، if the profit is distributed equally among 31 workers ، find the share of each worker
4. Find the result of 502 × 6 ، 502 × 90 ، then deduce the product of 502 × 96
5. Find a prime number lies between 11 and 37
6. Find L.C.M ، H.C.F for the numbers 12 and 15
7. A hotel contains 204 rooms divided equally by a number of floors ، each floor contains 17 rooms. How many floors are there in this hotel ?
8. Draw Δ ABC right at B ، where BC = 4 cm. ، AB = 3 cm. ، Write the type of this triangle according to its side lengths.
9. Using the geometric instruments - Draw Δ XYZ in which XY = 7 cm. ، YZ = 5 cm.

, m ($\angle$ XYZ) = 40°

10. If the sum of two perimeters of two squares is 88 cm. and if the side length of one of the two squares is 12 cm. , then find :
    (a) The side length of the other square.
    (b) The difference between the areas of the two squares.
11. Draw Δ ABC in which AB = 5 cm. , ($\angle$ B) = 90° , BC = 5 cm. , then complete :
    (a) AC = ... cm.
    (b) The perimeter of Δ ABC = ... cm.
    (c) The type of the Δ ABC according to its side lengths is ....
    (d) The type of the Δ ABC according to the measures of its angles is ....
12. Draw the square ABCD of side length 4 cm. , Join its diagonals $\overline{AC}$, $\overline{BD}$ to intersect at M , Find the area of the square ABCD
13. The opposite figure :
    Shows a rectangle drawn inside another one.
    (a) Find the area of the shaded part.
    (b) Find the difference between the perimeters of the two rectangles



5 *Put the suitable relation (< , > or =) :*

1. 652 × 4 .... 652 × 5
2. The area of a square of side length 6 .... the area of rectangle whose dimensions are 4 cm. , 6 cm.
3. 12 500 ÷ 5 .... 10 × 25
4. 678345 .... 578344 + 100 000
5. The measure of the straight angle .... the sum of the measure of the angle of a triangle.
6. The measure of the right angle .... the measure of the obtuse angle.
7. 2 0000 ÷ 4 .... 2 000 ÷ 4
8. The perimeter of a square of side length 6 cm. .... The perimeter of an equilateral triangle of side length 7 cm.
9. 4 milliard .... 40 × 1000 000
10. 6 × 15 .... 90 ÷ 2
11. 6 × 4 milliard .... 40 × 1000 000
12. 6 × 70 × 10 .... 5 tens × 100
13. 200 – 120 .... 160 ÷ 2
14. 800 dm^2. .... 8 m^2.
15. 3 meters , 5 centimeters .... 350 cm.
16. The value of the digit 4 in the number 94876 .... the value of the digit 8 in the number 94876.

6 *Choose the correct answer :*

1. The numbers 2 , 3 , 5 , 7 are called .... numbers. (prime – odd – even)

2. The measure of any angle of a square equals ………… (45 – 90 – 150)

3. The two perpendicular straight lines form 4 ………… angles.
(a cute – right – obtuse)

4. The number of the factors of the prime number is ………… (one – two – three)

5. The number ………… is a prime number. (15 – 17 – 21)

6. Number of sides of any polygon does not equal number of its …………
(diagonals – angles – vertices)

7. If the perimeter of an equilateral triangle is 12 cm. , then its side length is ………… cm.
(3 – 36 – 4)

8. $3\frac{1}{2}$ km. = ………… m. (35 – 3500 – 350)

9. L.C.M for the numbers 8 , 12 is ………… (24 – 48 – 4)

10. The value of the digit 3 in the number 736542 is …………
(thousands – ten thousands – hundred thousands – millions)

11. The number ………… is divisible by each of 2 and 5. (72 – 25 – 100)

12. The prime number after the number 399 is ………… (400 – 401 – 403)

13. The diagonals of the square are …………
(equal in length and not perpendicular – perpendicular but not equal in length – equal in length and perpendicular)

Model (1)

1 ***Complete each of the following :***

1. The number 3 milliard , 45 million , 473 thousand is written in digits as …………
2. The prime number whose sum of its factors 6 is …………
3. The prime number has only ………… factors.
4. 3 m^2. ………… dm^2.
5. $\frac{1}{3}$ of a day = ………… hour.
6. If the dimension of a door in the form of a rectangle are 180 cm. , 10 dm. , then its perimeter = ………… cm.

2 ***Choose the correct answer :***

1. The number 15 is a common multiple for the two numbers …………
   a. 2,5 b. 3,4 c. 5,3
2. The diagonals are equal in length in …………
   a. square and rectangle b. parallelogram and rectangle
   c. rectangle and rhombus d. square and rhombus
3. The value of the digit 5 in the number 5612816 is …………
   a. thousand b. million c. tens
   d. hundred thousands
4. ………… is a common multiple for all numbers
   a. zero b. 1 c. 10 d. 100
5. The milliard is the smallest number formed from ………… digits.
   a. 7 b. 8 c. 9 d. 10
6. The perimeter of a square whose area 36 cm^2. is …………
   a. 24 cm. b. 144 cm. c. 1296 cm. d. 72 cm.

3 ***Find the result of each of the following :***

(a) 8752013 + 439815 = ………… (b) 7256312 – 7056300 = …………

(c) 436 × 59 = ………… (d) 15408 ÷ 36 = …………

4 (a) Factorize the two numbers 24 , 30 to their prime factors , then find

1. H.C.F 2. L.C.M

(b) Draw Δ ABC in which AB = 6 cm. , m (∠ B) = 60° , BC = 4 cm. , then

1. By using the ruler find the length of $\overline{AC}$
2. State the type of Δ ABC according to its side lengths.

5 (a) Find the greatest and the smallest number using the following digits : 7 , 0 , 2 , 5 , 9 , 4 then Calculate the difference between them.

(b) Eman bought 24 meters of cloth for L.E. 648 find the price of one metere.

Model (2)

1 ***Complete each of the following :***

1. The smallest number formed from 7 digits from the digits 5 , 8 , 4 , 7 , 0 , 2 , 3 is ....
2. The area of the square whose side length 5 cm. is ....
3. The value of the digit 3 in the number 3721014 is ....
4. The value of the digit 3 in the number 3721014 is ....
5. The two diagonals are equal in length in .... , ...
6. If the dimension of a door in the form of a rectangle are 180 cm. , 10 dm. , then its perimeter = ... cm.

2 ***Choose the correct answer :***

1. L.C.M for the numbers 20 and 12 is .... (2 ***or*** 4 ***or*** 30 ***or*** 60)
2. The smallest prime number is .... (1 ***or*** 2 ***or*** 3 ***or*** 5)
3. 510309 + 7489691 = ... (8 milliards ***or*** 8 millions ***or*** 8 thousands ***or*** 8 hundreds)
4. If 45 × 13 = 585 , then 589 = 45 × 13 + ... (2 ***or*** 4 ***or*** 30 ***or*** 60)
5. If the perimeter of a square is 28 cm. , then its side length is .... (7 ***or*** 14 ***or*** 4 ***or*** 12)
6. A rectangle , its dimensions are 3 cm. , 7 cm. then its perimeter = ... (7 ***or*** 17 ***or*** 20 ***or*** 40)

3 ***Complete using (< , > or =) :***

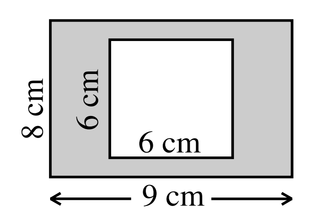
1. 4 cm^2 .... 400 cm^2.
2. 8 dm. .... 80 cm.
3. 5 km. .... 500 m.
4. 300 .... 3 milliard
5. 3 × 14 .... 90 ÷ 2
6. $\frac{1}{6}$ of a day .... 12 hours.

4 (a) Draw Δ ABC in which AB = 7 cm. , m (∠ A) = 45° , m (∠ C) = 75° , Find m (∠ B). Write the type of the triangle according to the measure of its angles.

(b) Find H.C.F , L.C.M for 24 and 30

5 (a) **In the opposite figure :**

Find the area of the shaded part



(b) In a school if 756 pupils are distributed equally on 18 classes. Find number of pupils in each class

Model (3)

1 ***Choose the correct answer :***

1. Ten million , five hundred seventy two thousand = …………
   (10507200 ***or*** 10510072 ***or*** 105721 ***or*** 10572000)
2. The triangle whose length of its sides 3 cm. , 7 cm. , and 5 cm. is …………
   (scalene triangle ***or*** equilateral triangle ***or*** isosceles triangle)
3. The number ………… is the common multiples of all numbers. (0 ***or*** 2 ***or*** 3 ***or*** 1)
4. The geometric figure which its four sides equal in length is called …………
   (trapezium ***or*** parallelogram ***or*** rhombus)
5. The number ………… is divisible by 3 (28 ***or*** 13 ***or*** 17 ***or*** 24)
6. L.C.M of 16 and 20 is ………… (80 ***or*** 40 ***or*** 20 ***or*** 10)

2 ***Complete the following :***

1. The million is the smallest number formed from ………… digits.
2. 11 , 16 , 21 , 26 …………, …………, …………, complete in same pattern.
3. The value of the digit 4 in the number 5467813 is …………
4. In a rectangle each two opposite sides are ………… in length.
5. The rectangle whose dimensions are 8 cm , 6 cm , its perimeter = …………
6. H.C.F of two numbers 12 and 16 equals …………

3 (a) ***Put the suitable sign (> , < or =) :***

1. 3 milliard ………… 475956432
2. 7423856 – 5018738 ………… 2415117
3. 3 km. ………… 3000 m.

(b) ***Put (✓) in front of the correct statement or (✗) in front of the incorrect one :***

1. 345962 + 154048 = 50000 ( )
2. The two parallel lines never intersect each other. ( )
3. L.C.M of 12 , 30 is 60 ( )

4 1. The perimeter of a square is 32 cm. , find its area.
2. Calculate 487 × 25

5 (a) Draw Δ ABC in which AC = 6 cm. , m (∠ A) = 40° , m (∠ C) = 65° , determine the type of this triangle according to the measures of its angles.

(b) Hazem bought 26 books from the book fair of series animal world , if the price of one book is P.T 725. Find out the money that Hazem Paid.

Model (4)

1 ***Complete the following :***

1. The smallest number formed from 8 digits is ....

2. The value of the digit 8 in the number 147385 is ....
3. 59 million , 42 thousand , 63 = ...
4. The H.C.F for 12 , 30 is ....
5. The sum of the measures of the interior angles of a triangle is ....
6. The multiples of the number 6 that included between 30 , 45 is ....

2 ***Put the suitable relation (< , > or =) :***

1. 360 cm. .... 6 m
2. 356705 + 3622195 .... 8 million.
3. 7200 ÷ 3 .... 60 × 40
4. 75 thousand .... 750 hundred
5. 3 milliard 965752812
6. 83 dm^2. .... 840 cm^2.

3 ***Complete the following :***

1. 50 × 600 = ... tens.
2. The factors of the number 8 is ....
3. The triangle whose side lengths are different is called ....
4. L.C.M of the two numbers 24 and 18 is ....
5. The diagonals of the rectangle are .... , ...
6. Number of vertices in the hexagon is ....

4 (a) Draw Δ ABC , where AB = AC , m (∠ B) = 60° , then find :

1. Length of $\overline{AC}$
2. Perimeter of Δ ABC
3. Type of this triangle according to the lengths of its sides.

(b) In a school if 798 pupils are distributed equally among 19 classes.
Find the number of pupils in each class

5 ***(a) Find the result of :***

1. 17620 + 5356 = ...
2. 267 × 18 = ...

(b) Reda bought a T.V. set by L.E 4420 , he paid L.E 500 in cash , then he paid the rest in 28 equal installments. Find the value of each installment.

Model (5)

1 ***Complete the following :***

1. The rectangle is a parallelogram in which its angles ....
2. 5600 dm^2 = ... m^2.
3. .... is the common multiple for all numbers.
4. The perimeter of the square = ... × ....
5. The number 3 million , 132 thousand , 81 in digits is ....
6. The value of the digit 3 in the number 21538006 is ....

2 ***Choose the correct answer :***

1. .... is divisible by 2 , 3 (10 ***or*** 18 ***or*** 21)
2. 32605108 .... 23511998 (> ***or*** < ***or*** =)
3. All the .... numbers are divisible by 2 (odd ***or*** even ***or*** prime)
4. The H.C.F of 8 , 12 is .... (2 ***or*** 4 ***or*** 8)
5. 25 × 7 × 4 = ... is divisible by 3 (36 ***or*** 700 ***or*** 179)
6. The triangle whose side lengths 6 cm. is ....
   (scalene triangle ***or*** equilateral triangle ***or*** isoscles triangle)

3 ***Complete the following :***

1. The number of the factors of the prime number is ....
2. The diagonals of the parallelogram .... each other.
3. 2565178 – one million = ...
4. If the measures of two angles of a triangle are 64° , 81° , then this triangle is .... angled triangle.
5. 24180 ÷ 60 = ...

4 (1) ***Find the result of :***

(a) 5034567 + 3203456 = ...
(b) 893756 – 431877 = ...
(c) 235 × 85 = ...

(2) A hotel contains 192 rooms divided equally by a number of floors , each floor contains 16 room How many floors are there in this hotel ?

5 1. Find H.C.F , L.C.M of the numbers 28 and 42

2. Rectangle its dimensions are 9 cm. , 12 cm. Find :

(a) Its area

(b) Its perimerter.

Model (6)

1 ***Find the result of each of the following :***

(a) $70070 \div 35 =$ .... (b) $35859 + 7936 =$ ....

(c) $123 \times 15 =$ .... (d) $90000 - 78456 =$ ....

2 ***Choose the correct answer :***

1. Hundred thousand and three hundred seventy five is .... (10315 *or* 100375 *or* 1375)
2. The greatest number formed from the digits 4 , 1 , 5 , 3 , 2 and 9 is .... (45321 *or* 123459 *or* 954321)
3. The smallest prime number is .... (1 *or* 0 *or* 2)
4. The value of the digit 4 in the number 546789 is .... (40000 *or* 4000 *or* 400000)
5. The perimeter of square whose side length 3 cm. = ... (9 cm. *or* 6 cm. *or* 12 cm.)
6. 105 is divisible by .... ({2 , 3} *or* {5 , 2} *or* {5 , 3})

3 (a) ***Complete the following :***

1. The number which has only two factors is called ....
2. The diagonals of the rectangle .... in length.
3. 5 dm. = ... cm.

(b) A number if it is divided by 11 the quotient is 488 and remainder 4 , what is this number ?

4 ***Complete the following :***

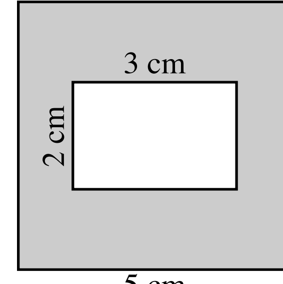
1. H.C.F for the two numbers 18 , 30 is ....
2. L.C.M. for the two numbers 7 , 3 is ....
3. The polygon of 5 sides is called ....
4. The measure of the right angle = ... °
5. 4×25 .... $100 \div 2$ (by using > , < or =)
6. 5348475 – 3 hundred thousand

5 (a) Draw Δ XYZ in which XY = 5 cm. , m ($\angle$ X) = m ($\angle$ Y) = 45° , find

1. Measure $\angle$ Z
2. What is the type of Δ XYZ according to the measures of its angles.

(b) In the opposite figure :

Find the area of the shaded part ,
the outer shape is a square of side length 4 cm
and the inner shape is a rectangle
of dimensions 3 cm. , 2 cm.



Model (7)

1 ***Complete the following :***

1. 94 million , 35 thousand , 15 = ...
2. The value of the digit 3 in the number 3721014 = ...
3. The H.C.F of the two numbers 16 and 24 = ...
4. The L.C.M of t he two numbers 14 , 10 = ...
5. 465276 + three hundred thousand = ...
6. The length of the side of the square whose perimeter 36 cm =...........

2 ***Choose the correct answer :***

1. 950000 – 324067 = ... (324076 ***or*** 625933 ***or*** 675933)
2. The number 2100 is divisible by .... (7 ***or*** 11 ***or*** 13)
3. Δ XYZ in which m (∠ X) = 40° , m (∠ Y) = 30° , then Δ XYZ is ....
   (acute angled triangle ***or*** right angled triangle ***or*** obtuse angled triangle)
4. The number 108 is divisible by the two prime numbers 3 , ... (5 ***or*** 7 ***or*** 2)
5. The number .... is prime number . (6 ***or*** 8 ***or*** 2)
6. 8 × 641 × 125 = ... (641 thousand ***or*** 641 hundred ***or*** 641 million)

3 ***Put (✓) in front of the correct statement or (✗) in front of the incorrect one :***

1. 4816 ÷ 4 = 124 (   )
2. In the Δ ABC , if m (∠ B) = 105° , then it is possible to be an obtuse angled triangle. (   )
3. The square metre (m^2) is used for measuring the perimeters of the shapes. (   )
4. The two parallel straight lines never intersect each other (   )
5. The area of the square = side × side (   )
6. In a rhombus , all the sides are equal in length (   )

4
1. Find the quotient of 19836 ÷ 6 (without using the calculator)
2. Find L.C.M of the two numbers (5 × 4 × 11) , (5 × 6 × 11)

5
1. Draw the rectangle ABCD in which BC = 4 cm. , AB = 3 cm.
   draw $\overline{AC}$ intersects $\overline{BD}$ at M
2. A rectangular piece of land , its width equals half its length , Calculate its perimeter if its width = 24 metre.

Model (8)

1 ***Complete the following :***

1. 7288316 – 6 million = …………
2. The value of the digit 4 in the number 354267198 = …………
3. The L.C.M for two numbers 12 , 16 is …………
4. 4 × 765 × 25 = …………
5. In Δ ABC , m (∠ A) = 60° , m (∠ B) = 70° , m (∠ C) = ………… °

2 ***Put the suitable relation (> , < or =) :***

1. 3407805 + 3592195 = ………… 7 hundred thousand.
2. 3 m^2 ………… 30000 cm^2.
3. 9200 ÷ 4 ………… 60 × 40
4. The perimeter of a square whose side length 4 cm. ………… the perimeter of a rectangle whose dimensions 35 dm. , 45 dm.

3
1. Find the H.C.F for the two numbers 54,72
2. Arrange the following numbers in an ascending order : 41328 , 43182 , 42138 , 42138 , 42183

4
1. Find the smallest number divisible by 2 , 3 , and 5
2. Which is greater ? The area of the square of side length 6 cm. or the area of the rectangle whose dimensions are 5 cm. , 7 cm.

5
1. Draw Δ ABC in which AB = BC = 4 cm. , m (∠ B) = 60° , then find :
   (a) The length of $\overline{AC}$
   (b) The type of the triangle according to the measures of its angles.
2. Sally bought 26 metres of cloth for L.E 286 , find the price of 8 metres of the same kind.

Model (9)

1 ***Choose the correct answer :***

1. The smallest prime number is ………… (0 *or* 1 *or* 2)
2. 45 tens = ………… (45 *or* 450 *or* 4500)
3. ………… is the smallest number divisible by each of 2 and 5 (5 *or* 10 *or* 20)
4. All the sides are equal in length in the ………… (square *or* rectangle *or* parallelogram)
5. The area of the rectangle whose dimensions are 3 cm. and 5 cm. is ………… (16 cm. *or* 15 cm. *or* 8 cm.)
6. The value of the digit 8 in the number 437839562 ………… (800 *or* 80 *or* 800000)

2 ***Put the suitable relation (> , < or =) :***

1. 44302 + 5698 ………… 50 thousand
2. 4 metre ………… 40000 cm.
3. 999 ………… 50 × 20
4. The measure of the acute angle ………… the measure of the right angle.
5. 100 thousand ………… 100 ten thousand.
6. 580 600 718 ………… 580 600 708.

3 ***Complete the following :***

1. H.C.F for the two numbers 20 and 30 is …………
2. The prime even numbers is …………
3. 300 × 500 = …………
4. 5 million , 75 thousand , 250 = …………
5. The factors of the number 15 are …………
6. In the rectangle all angles are …………

4 (a) ***Find the result of each of the following :***

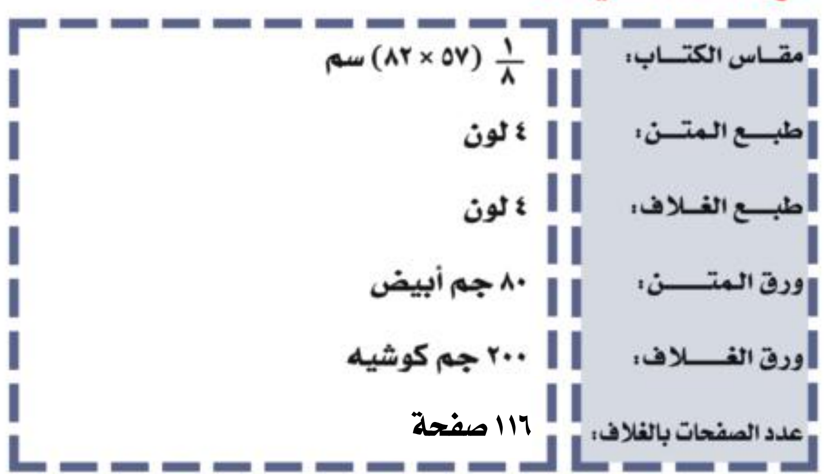
1. 62491 + 251542 = …………
2. 93642 – 32161 = …………
3. 9180 ÷ 45 = …………

(b) Nada bought 25 metres of cloth , the price of one mere P.T. 475 , How much money did Nada pay ?

5 (1) Which is greater : the area of the square whose side length 6 cm. or the area of the rectangle whose dimensions 7 cm. and 6 cm. ?

(2) Draw Δ ABC in which AB = 3 cm. , BC = 4 cm. , m (∠ B) = 90° , then find the length of $\overline{AC}$

المواصفات الفنيــة:



مقـاس الكتــاب:	$\frac{١}{٨}$ (٥٧ × ٨٢) سم
طبــع المتــن:	٤ لون
طبــع الغـلاف:	٤ لون
ورق المتـــن:	٨٠ جم أبيض
ورق الغــــلاف:	٢٠٠ جم كوشيه
عدد الصفحات بالغلاف:	١١٦ صفحة

رقم الايداع ٩٠٩٩ / ٢٠١٢

الشروق

الحديثة للطباعة والتغليف

القاهرة : ٨ شارع سيبويه المصرى ـ ت : ٢٤٠٢٣٣٩٩ ـ فاكس : ٢٤٠٣٧٥٦٧ (٠٢)

مدينة العبور ـ المنطقة الصناعية